The Journal of the American Medical Association

VOL. XXXIV CHICAGO, ILLINOIS, MARCH 24, 1900. No. 12.

Original Articles.

SELECTION OF ANESTHETIC IN SURGERY.*

BY JOHN A. WYETH, M.D.

PROFESSOR OF SURGERY IN THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

NEW YORK CITY.

I shall state my own views, based on a fairly large operative experience extending over a period of more than a quarter of a century, rather than read a paper fortified with the records of experiments, the statistics of accidents, or the peculiar views of others. I shall deal only with the two well-known anesthetics, chloroform and ether, and these without mixture.

My early experience under my preceptor in northern Alabama, and at the University of Louisville in 1867-68-69, when I was a student there, was altogether in the use of chloroform. I do not think that in those three years I saw any other anesthetic employed. About the time of my graduation in Louisville, in 1869, I witnessed the death of a girl, about 16 years of age, to whom chloroform was being administered preliminary to a minor operation for the removal of a portion of a diseased tarsus. The accident was due to heart failure and occurred before the patient had been completely anesthetized. Soon after this I became a student at the Bellevue Hospital Medical College in New York City, and observed that in the work there and in the large clinics in Bellevue Hospital, ether was almost exclusively employed. With the exception of Prof. Louis A. Sayre, I can not now recall a single well-known operator of that day who used chloroform as an anesthetic.

In the first ten years of my service at the Mt. Sinai Hospital, and at the New York Polyclinic Medical School and Hospital, as well as in private practice, I employed ether exclusively. From time to time I observed not only the very great irritation which the vapor of ether caused to the respiratory tract, but that in a certain proportion of cases, especially in alcoholic subjects, it was extremely difficult to secure a profound narcosis without inducing a threatening condition of asphyxia. Such annoyance as the churning of mucus into froth, which filled the pharynx and nasal cavities and occasionally drifted into the larynx and threatened the patient with asphyxia, were entirely absent in chloroform narcosis, and the comfort both to patient and operator, obtained in this manner, encouraged me to the more frequent employment of this agent. At present, in about 75 per cent. of my operataions I employ chloroform either wholly or at some stage of the narcosis. In using it I invariably inject, beneath the skin, ¼ gr. of morphia with 1/150 gr. of atropia, about fifteen minutes before the anesthesia is commenced. The action of these combined alkaloids is to stimulate the heart, and to allay to a considerable extent the anxiety of the patient. Their employment is based on what I believe to be a fact, that chloroform is dangerous chiefly to the heart, and that it is in the early stages of its administration that its danger is imminent. All the cases of death from chloroform with which I have been acquainted have been from heart and not respiratory failure, and this depression of the heart has occurred before a complete narcosis has been established. Fright or anxiety is a depressing factor, and the temporary stimulating effect of these alkaloids allays anxiety in great measure, and is useful in stimulating the action of the heart. Chloroform should be administered with very great care, and one not thoroughly trained in its use should not administer it or permit it to be employed. Although I have in my regular employ an assistant who is an unusually well-trained anesthetist, it is my rule to superintend the narcosis myself until I have tested thoroughly the ability of the patient to withstand the anesthetic.

I prefer the Esmarch screen, and administer chloroform very carefully, keeping the finger on the pulse all the time, and watching the pupil to notice any sudden dilatation. If the patient gradually gives way to the effect of the anesthetic, and the pulse holds good without any break or interruption of its rhythm, I am satisfied that the chloroform is having no unfavorable effect. The pulse may be rapid, 100 or 120 to the minute; it may be slow enough to register only 50 or 60 in the minute, but these variations are not suggestive of serious danger so long as the heart beats regularly. If it begins to break off and a beat is lost here and there, or if two or three successive beats fall off in force and fulness and then rise again in volume, it is a signal of alarm which I always respect, and I then remove the screen and wait a few moments to see what the heart will do. If it steadies up with the removal of the anesthetic, I accept the inference that the slight interruption in the heart's rhythm is due to nausea, and continue with the anesthetic. But should there with this condition occur sudden pallor of the face, especially marked about the lips, I remove the chloroform at once and immediately cause the head and chest to be lowered by lifting the patient's lower extremity in the air, or by elevating my operating-table in the Trendelenburg posture. I consider this such an important step in threatened collapse in chloroform narcosis that I always administer it on my operating-table, where this position can be obtained by a few turns of the windlass. If I am satisfied that the heart is showing any resentment to the effect of chloroform, ether is at once substituted, and should the patient continue to do well under ether, the operation may be concluded with this form of narcosis. However, when there has been only a suggestion of trouble from chloroform, and ether has been substituted for a few minutes, if there are kidney or other lesions

*Read in a Discussion on Anesthesia, before the New York County Medical Association

which contraindicate the use of the latter, I return to chloroform, always, however, with increased precaution in noticing its action on the heart. Another usually alarming symptom of a too profound effect from chloroform is when the pupil is found suddenly and widely dilated, and I always desist from chloroform narcosis when this is observed.

Finally, it is not proper in my opinion to endeavor to bring the patient rapidly under the influence of chloroform. The free admixture of air with the vapor, accustoming the nerve-centers and the heart to the presence of this agent in the blood, is essential to safety. The average time of obtaining a complete narcosis with chloroform in my work is from fifteen to twenty minutes. When ether is employed I always use it with the Ormsby inhaler or some form of apparatus which does not permit the passage of the atmosphere over the ether vapor and thence directly into the respiratory tract. The Allis instrument or any other form of inhaler is extremely objectionable, in my opinion, for the reason that the passage of the atmosphere over the ether vapor lowers the temperature of the inspired air very considerably, and carries this cold vapor into the respiratory tract, often producing severe irritation, and sometimes fatal inflammatory reaction. Moreover, the use of the closed apparatus which mixes air with the ether vapor, with which warm air is carried back into the lung, produces a modified form of asphyxia and makes narcosis possible with a smaller quantity of ether carried into the blood than is possible with the open inhaler, which permits an unlimited supply of oxygen into the lungs. This modified asphyxia is perfectly free from danger, can be controlled with great ease by the anesthetizer, and when it becomes necessary to increase the oxygen in the blood, the simple tilting of the inhaler to one side permits a sufficient quantity of fresh air to pass into the respiratory organs without permitting it to pass over the ether vapor. In a series of demonstrations made in operations at Mt. Sinai Hospital, I proved that with the Ormsby inhaler the patient could be anesthetized with ether, held in narcosis during the operation, and would come out more rapidly and with less vomiting and irritating after-effects on the kidneys and other organs than by the employment of any of the open methods of inhalation. It is a well-known fact that the elimination of ether vapor from the blood through the kidneys is the cause of very considerable irritation of these organs, and the larger the volume of ether in the blood the greater the volume for elimination by the kidneys. It is clear that the small quantity of ether necessary in the use of the closed inhaler in part removes this danger to the kidneys. Again, the warming of the ether by the expired air prevents much of the irritation and consequent inflammation of the trachea, larynx, bronchial tubes and lungs which follow the use of the open inhaler, in which the cold vapor is carried into the respiratory tract.

In the hands of a tyro, ether is safer than chloroform, and this without regard to the condition of the patient; but in the hands of an experienced operator, one who has studied his case carefully, and satisfies himself that the conditions justify the use of chloroform, this agent is practically without danger. I prefer to use chloroform in all cases where there are pathologic changes in the kidneys, and in which heart lesions are absent. When the lungs are seriously involved, as in tuberculosis, gummatous tumors or any form of pulmonary inflammation, or in pleuritis in which there does not exist an effusion sufficient to interfere with the heart's action by compression, chloroform is in general preferable. When, however, in any way the heart has been crippled, ether is the safer. In general, in all operations within the abdominal cavity chloroform is preferable, for the reason that vomiting is less apt to occur during as well as after the operation. As intimated above, however, when there is any heart lesion, even in abdominal surgery it is better to employ ether than threaten this crippled organ with chloroform.

I am especially afraid of chloroform in patients who have had repeated attacks of rheumatism, and in whom the action of the heart is weakened either by serious valvular lesions, or in whom atheroma of the coronary arteries or fatty metamorphosis of the heart muscle exists. In that class of patients known as "chronic alcohols," chloroform is preferable, by reason of the difficulties met with in producing profound narcosis with ether.

In children, ether is in general the safer anesthetic. In the early part of my career I was taught to believe that chloroform was the better agent in this class of cases, but under 12 years of age it is not without considerable danger. In my service at Mt. Sinai Hospital, a child of 10 years, on whom four days earlier an amputation had been done under chloroform without the suggestion of danger, while the wound was being dressed and while chloroform was again being administered by the same physician and with the same precautions, died from heart failure when not more than a dram of the agent had been employed, and before complete narcosis. Two other fatal cases of chloroform anesthesia in children, in the hands of an experienced operator, occurred in another institution, to my knowledge, and if I know personally of three such instances, many others must have occurred. Chloroform is especially dangerous in children who have been weakened by any inherited or acquired dyscrasia, or from improper nourishment, and great care should be taken to prevent a too rapid administration of this agent, when, as is frequently the case, the little patient begins to struggle and make rapid and deep inspiratory efforts. In children over 12 years of age, well nourished, with no serious lesions of the kidneys or respiratory apparatus, chloroform is, in my opinion, as safe as ether.

19 West Thirty-fifth Street.

THE AMOUNT OF THE ANESTHETIC.*

BY THOS. L. BENNETT, M. D.

ANESTHETIST TO NEW YORK HOSPITAL, ROOSEVELT HOSPITAL, HOSPITAL FOR RUPTURED AND CRIPPLED, ETC.

NEW YORK CITY.

The anesthetic is undoubtedly a prominent etiologic factor in the disturbances which accompany and follow surgcal operations. To it may be attributed, directly or indirectly, much of the rapid pulse and respiration, exhaustion, shock, nausea, vomiting, asphyxia, syncope, bronchitis, pneumonia, pulmonary edema, and nephritis seen in connection with surgical procedures under general anesthesia, and clinical evidence abundantly proves that these disturbances bear a more or less close relation to the amount of the anesthetic used. It must, therefore, be of interest and value to look into the question of the amount of the anesthetic and to determine, if possible, the facts which may enable us to reduce this element to the minimum.

Let us consider for a moment the way in which the general anesthetics may cause the disturbances referred

*Read in a Discussion on Anesthesia, before the New York County Medical Association.

to. I am convinced, from long observation, that the rapid pulse and respiration, exhaustion and shock not uncommonly seen after operations free from hemorrhage, are more frequently due to the anesthetic than to the operation, and are in direct proportion to the amount used. This is particularly true of ether, and the condition is here due to overstimulation. This is accompanied by rapid and vigorous pulse and respiration, and these, if long continued, almost invariably result in exhaustion and shock. Quiet pulse and respiration are usually compatible with good anesthesia, and are attained by avoiding the overstimulation of large quantities of ether. Exceptional cases require so much, however, that this is not possible, and it becomes a question whether another anesthetic should not be chosen. While a great many factors enter into the question of nausea and vomiting after general anesthesia, I am satisfied that there is a direct proportion between the amount of the anesthetic and the amount of the disturbance.

Asphyxia during anesthesia is almost invariably due to mechanical obstruction to respiration, resulting from too rapid and free use of the anesthetic. Under such circumstances the upper air-passages become more and more congested, stertor becomes more and more pronounced and the respiratory efforts more and more vigorous. From these causes the obstruction is progressive and may finally become complete if the anesthetic be pushed. Asphyxia may also result from an overdose or from the entrance of foreign bodies into the air-passages. Syncope from the anesthetic is invariably due to an overdose.

While the cause of bronchitis and pneumonia following operations with anesthesia is probably complex, the anesthetic is a prominent factor in the cases not due to sepsis, exposure, the injury, or the operation itself, and its action in this respect would seem to be both direct and indirect; direct in the local irritation and congestion attending the administration, and indirect in the lowering of body temperature and particularly in causing conditions of the respiration which favor the aspiration of foreign matter into the lungs. The latter is no doubt the greatest source of trouble in this connection, and the offending material may be mucus, saliva, vomited matter, blood or other products of the operation. The rôle of mucus and saliva formed so freely during some cases of etherization, is of great importance. This secretion flows into the pharynx and is often drawn into the larynx and trachea, where it is carried back and forth until it is churned into froth. It acts as a mechanical obstruction to respiration; the patient suffers from lack of oxygen and the consequent violent respiratory efforts serve to draw the foreign substance deeply into the lungs. While in the mouth and pharynx this material is exposed to the micro-organisms that inhabit the region, often including the pneumococcus, and if other conditions are favorable, so-called "ether pneumonia" may result.

Acute pulmonary edema is, in my judgment and experience, a rare complication of anesthesia. The condition from the intense and rapid lung congestion of "ether from termed "broncorrhea," in this connection, may be occasionally due to a slight pulmonary edema resulting drowning," but in the vast majority of instances is nothing more than the mucus and saliva from the mouth and pharynx above referred to. The relation of the amount of the anesthetic to these pulmonary complications is obvious.

The influence of anesthetics on the kidneys is a subject that has received much attention, a notable example of which is the recent elaborate experimental research of Dr. W. H. Thompson and Dr. R. C. Kemp. While some contend that one anesthetic and some that another is most damaging to these organs, all agree that it is the large amount that is dangerous, and this point is sufficient for the present argument. Assuming that the quantity is an important factor in the disturbances following general anesthesia, and that the minimum amount possible is a desirable consideration, what are the facts to guide us to this end? Granting that a degree of narcosis is required which will assure perfect quiet and relaxation on the part of the patient, the necessary amount of the given anesthetic will be found to depend on: 1. The requirements of the particular patient. 2. The requirements of the particular operation. 3. The method of administration. 4. The administrator.

The requirements of the particular patient will vary greatly with the type and condition presented. In general terms a predominance of the conditions in one or the other of the following groups will determine whether the patient will require more or less of the anesthetic as compared with that taken by what may be called an average patient: 1. Patients who, as a rule, require more than the average are the large, strong, energetic, wiry, excitable, neurotic and intemperate. 2. Those who, as a rule, require less than the average are the small, weak, lethargic, languid, calm, phlegmatic and temperate. Patients who are worked up to a high point of nervous tension and who have only restrained themselves by great effort, frequently require large amounts of the anesthetic. Those who are exhausted and emaciated by prolonged illness not only require small amounts to produce complete anesthesia, but will remain quiet under a much lighter degree of narcosis than will most patients in usual health. Many children at the age of puberty require an unusual amount of the anesthetic.

The requirements of the particular operation will vary according to its nature, severity, location and duration. It is a matter of common observation that certain operations require a particularly deep narcosis, such as those of the rectum, perineum, bladder, urethra, eye and ear, and abdominal procedures involving severe or deep manipulations. On the other hand, a comparatively light narcosis is sufficient for most superficial operations, those on the extremities, bones, joints, cervix, etc.

The method of administration plays, perhaps, the most important part in the amount of the anesthetic used, if not in the amount the patient receives, and the one does not necessarily mean the other. I have in many instances been called on to etherize patients who had previously had ether administered to them by the open method, with partial or complete failure after the use of enormous quantities of ether, and I have experienced little or no difficulty in anesthetizing these patients with small quantities of ether by the close method. In administering chloroform, while several ounces an hour may be required if it is poured on and administered from a folded towel, one ounce will frequently be sufficient if an Esmarch mask and drop-bottle are used, and with a Junker apparatus several drams will suffice. Not only does the method of administration determine the amount of the anesthetic, but the manner in which a given method is carried out will affect the result. Take the administration of ether from a cone, as an example. There are two ways in which ether may be

added from time to time, small quantities (ʒi or ii) frequently, or large quantities (ʒi or more) at longer intervals. The former plan will consume much less ether and is as preferable to the latter as the "drop by drop" method of giving chloroform is preferable to what may be termed the "dram at a time" method, and for the same reasons.

The administrator, his knowledge, experience, skill and aptitude in this particular direction, will be a most important factor in the question of the amount of the anesthetic. It is a striking fact that men differ greatly in their ability to administer anesthetics. Some acquire the art quickly, others slowly or never. A very great percentage of medical men actually dislike to anesthetize, and these never should.

I am convinced that the smallest amount of the anesthetic compatible with quiet, relaxation and freedom from reflex manifestations during the operation, will give the patient the least possible after-disturbance attributable to the anesthetic. While the actual amount used has not as much significance as the amount of effect produced, there is very apt to be a rather direct proportion between these facts, and the man who uses a pound of ether an hour is vastly more liable to have after-troubles than the one who uses four ounces an hour.[1]

7 East Eighty-seventh Street.

NITROUS OXID AND ITS MODIFICATIONS IN PROLONGED SURGICAL OPERATIONS.*

BY S. ORMOND GOLDAN, M.D.

NEW YORK CITY.

One year ago I presented in this hall a paper on anesthesia, in which nitrous oxid in a general way was principally discussed. I now wish more particularly to bring to notice the possibilities of this and its modifications in prolonged surgical operations. We may consider nitrous oxid, nitrous oxid and carbon dioxid, nitrous oxid and oxygen.

In the early days of nitrous oxid administration, the effects produced by the gas were unsatisfactory, due to impurities, besides a large admixture of air, which produced excitement giving rise to the term "laughing gas." Apparatus with more perfect valve arrangement, by which air was excluded, then came into use, and more perfect anesthesia is attainable. Nitrous oxid has been used in isolated cases, in long operations, but from what we are told in many instances the narcosis was anything but satisfactory, the patient often crying and squirming throughout the entire procedure, though unconscious of having done so. It is usually supposed that nitrous oxid is only applicable in the short operation, the time available ranging from thirty seconds to two minutes, which is the period intervening between the removal of the face-piece and return to consciousness. Operations in the mouth, as tooth extraction, etc., also require rapidity on the part of the operator. It has always seemed remarkable to me that the dentists do not use the Rose position. All text-books mention the danger of fragments of teeth falling into the larynx. I think this position would effectually prevent this, and hemorrhage—which is always free in oral operations—would flow from the mouth instead of into the larynx. There is no objection to using gas repeatedly in operations in the mouth. It requires many interruptions for the surgeon, but this is more than compensated by the quick return to consciousness and the elimination of risks due to a more dangerous anesthetic.

Operations not in the mouth, where the inhaler may be removed or air admitted and gas as quickly readmitted, may be prolonged indefinitely. For this purpose a valved device in most perfect working order is essential. A close-fitting inhaler without valves may be employed in the hands of one experienced, for shorter narcoses. The very best stop-cock at present made is that of Barth & Co., London, for the reason that it is air-tight and has indestructible valves, in my estimation a great advantage over that of Dr. Hewitt. This stop-cock is exceedingly simple, light and durable. It may be said that all stop-cocks are made much the same way, the only difference being that the valves in some work through vertical, in others through horizontal, axes. It occurred to me that in gas administration the valve arrangement might be dispensed with, making the apparatus much simpler, an important factor for the occasional administrator or the hospital interne, as it permits him to give his entire attention to the patient, and not to the apparatus. By this method the gas can be given as well as with the valved inhalers, and with a little practice it works particularly well where the gas is given as a precedent to etherization.

In the inhalation of nitrous oxid for a long operation, say an hour or so, it is recommended that the following precautions be particularly observed: Always have a sufficient supply of gas on hand. Nothing is more unsatisfactory than to have to continue with another anesthetic, a narcosis which would have been satisfactory with gas alone. If, as is usual, the recumbent position is employed, the stop-cock should be turned at right angles to the face-piece. The administrator may then stand at the head of the patient.

During a long narcosis the gas cylinder will often become covered with hoar frost, which is of no importance, but frequently with this the gas will freeze in the tap. The best manner to remedy this is to apply a towel wrung out of hot water around the valve of the cylinder—not the cylinder itself. A simple precaution, but one often conducive to a good anesthesia, is to have the patient's head turned fully to one side, as I recommend in all anesthetization. By this means the pharynx and larynx remain unobstructed by mucus; as in anesthesia by nitrous oxid it is not only essential that the patient breathe the gas easily, but that the air-passages should be free, that it may be exhaled as easily, when air is inhaled.

There are few contraindications to the use of nitrous oxid, and those principally depend on organic lesions of the circulatory apparatus, which I do not think it necessary to enter into here. There are few operations which contraindicate the use of the gas. These are principally operations of delicate dissection, or where venous engorgement is undesirable. Abdominal operations do not contraindicate its use, providing sufficient relaxation can be obtained. A question frequently asked is one regarding relaxation in abdominal cases. I might say, this can often be obtained, providing a small device which I have never before seen mentioned, is employed: that is, flex the legs and thighs fairly well. This will effectually produce relaxation of the abdominal wall in many cases, which would be absolutely tense otherwise, and another anesthetic would become necessary.

[1] As a rough estimate, allowing for different methods of administration, I believe the average amounts of the different anesthetics mentioned necessary for one hour will be nearly as follows: Ether, ʒiv to vi; chloroform, about ʒi; A. C. E., about ʒiii.

*Read in a Discussion on Anesthesia, before the New York County Medical Association.

During examinations under gas, for diagnostic purposes, the examiner has often assured me that the abdominal wall was perfectly flaccid, so that the pelvic contents could be easily and effectually palpated with both hands. There was then no reason, to my mind, why gas could not be employed, and I always take the precaution to flex the lower extremities. I also have observed that it is undesirable to carry the depth of anesthesia to the production of clonic muscular spasms, which are followed by tonic spasms, and so increase the rigidity of the muscles, instead of relaxing them. This latter point, however, requires great skill to accomplish. In those abdominal cases where gas will not sufficiently relax, I would recommend a method found useful where it was undesirable to subject the patient to too long etherization: Induce and maintain anesthesia, with gas alone, or combined with oxygen during the preparation of the patient on the table. I find an average time of 15 minutes is consumed; in some cases as little as 5 minutes, in others as much as thirty. Continue the gas to incision of the peritoneum; then turn on ether sufficient to obtain relaxation. After the peritoneum is sutured, discontinue ether and employ gas to the end of the operation.

Anesthesia by nitrous oxid is complete, varying in time from thirty seconds to two minutes, depending on the exclusion of air. If the respiratory passages are free, anesthesia is very quickly induced. The phenomena produced are as follows: At the commencement of inhalation there may be a slight feeling of suffocating, which will quickly pass away. After the first few inspirations the patient will experience the usual pleasant sensations, the gas having much the same pleasant, sweetish taste as chloroform, and if pure it has no irritating effects on the respiratory passages. Sneezing and coughing do occur in a very few instances. (If persisted in, it should lead to an examination for impurities in the gas. These impurities consist principally of the higher nitrogen oxids—intensely irritating vapors.) A feeling of exhilaration is produced; tingling sensations in the whole body, particularly in the extremities and tongue, buzzing in the ears, and sometimes dreams of a pleasant or unpleasant nature. Auditory sensations are very acute. Often the patient will describe loud, rumbling noises and a sensation as of falling, just preceding unconsciousness. The respiration, which is at first regular, becomes deep, inspirations becoming prolonged, as the blood becomes surcharged, respiration becomes rapid, short and shallow. The pulse, at first rapid and full, as anesthesia is produced becomes full, hard, regular, and slow, becoming irregular and small if the inhalation is not discontinued. As consciousness returns, the pulse becomes more rapid, approaching the normal, and the respirations become slower and fuller.

During induction of anesthesia by nitrous oxid, the eyelids twitch or open and close rapidly, the eyeballs protrude or roll upward, outward or inward, or may become fixed in the central position. The pupil, at the height of anesthesia, is widely dilated. The ciliary conjunctival or corneal reflexes are not abolished early in, and it is not wise to depend on these signs as a test of, anesthesia. Muscular spasms of the face, thorax, abdomen and extremities occur, stertor ensues, the skin and mucous membranes have become progressively more congested, until they become intensely cyanosed.

The best signs of anesthesia by nitrous oxid are stertor and cyanosis, small, hard pulse and rapid and shallow respiration. With some experiences, it is possible to produce anesthesia without intense cyanosis, and it should always be enndeavored to carry the inhalation just to the point of the convulsive movements. After the inhalation is discontinued, stertor ceases, cyanosis disappears and the patient quickly returns to consciousness. The gas should be readmitted before complete consciousness is regained; it should be remembered that it requires a shorter time and less gas to reinduce anesthesia than during the primary inhalation.

It averages about four gallons of pure nitrous oxid to anesthetize a patient of ordinary type, and about 100 gallons of gas by volume, twenty-five ounces by weight, will be used in an operation lasting one hour.

NITROUS OXID AND CARBON DIOXID.

This combination may be used in an inhaler without valves, either in long operations, or to precede ether. In this method the patient simply breathes back and forth into the gas bag, carbon dioxid is produced during the patient's respiration, and consists in amount equal to the quantity of oxygen in the blood at the time the inhalation was begun. It might, at first thought, be supposed that as the patient continued rebreathing the gas in the bag, carbon dioxid would be increased, and the nitrous oxid decreased. This would be so were the old and mistaken view correct, that is, that nitrous oxid produced its effect by hyperoxygenation of the blood, whereas, it is an asphyxiating agent, as no oxygen is present. After the oxygen in the blood is used, no carbon dioxid, which is a product of oxidation, is produced. This plan of anesthesia, I think, demonstrates that nitrous oxid is an asphyxiant, though it also has anesthetic properties, as proved, by its use with oxygen. This method produces anesthesia about as quickly as with nitrous oxid alone. Patients frequently complain of headache with this combination, and this I attribute, not to carbon dioxid, but to the volatile organic substances produced during respiration, and inhaled over and over again. To obviate this, the inhaler should be opened occasionally and the bag collapsed and then refilled with fresh gas. After anesthesia is complete, the obturator is turned and the inhaler removed until the patient takes a few breaths of fresh air; the inhaler is then reapplied and the gas admitted; this is repeated over and over again, throughout the entire operation. The quantity of gas used by this method is slightly less than when using nitrous oxid alone.

NITROUS OXID AND OXYGEN.

Dr. Hewitt's apparatus is usually employed for the inhalation of gas and oxygen. With this method it is endeavored to give the gas with as much oxygen as each patient will stand, to prevent cyanosis, and not too much to interfere with anesthesia. To secure the best results the apparatus must be in perfect order, and the administrator should be able to use it automatically, giving his whole attention to the patient. The percentage of oxygen must be varied from time to time throughout the narcosis, depending on the effects produced on the patient, not on the quantity of oxygen used as designated on the index. With this form of anesthesia, the mask is constantly applied, and the inhalation continues uninterruptedly. This form requires the greatest skill.

During anesthesia with nitrous oxid and oxygen, respirations are regular and about normal in frequency. The pulse is about the same as at the commencement of the narcosis; as gas is increased, it becomes slower and fuller; as oxygen is increased, it becomes more normal, until the normal is reached. With this apparatus the gas is administered and the oxygen admitted, and as

quickly as possible the oxygen percentage is increased, up to as great quantity as the patient will stand without interfering with anesthesia.

I would also like to show you a very simple method of using gas and oxygen. This consists of one gas bag, attached to which is an inverted Y-shaped tube, to which separate pieces of rubber tubing are attached. Two cylinders are used, and the bag is fairly well filled with gas, then oxygen let in. The proportions are varied according to the effect produced on the patient. Considerable experience is necessary to determine the relative quantities of the gases, and, if preferred, oxygen may be permitted to flow into the bag first. It is desirable to have the oxygen proportion as near 10 per cent. as possible, though in some patients much less than this can only be used to produce good results.

After-effects produced by nitrous oxid are rare. Consciousness is usually, though not always, immediately regained. The patient, often conscious, will not always be inclined to talk. Headache, sometimes intense, lasts for hours. Nausea and vomiting is sometimes intense, especially when the patient has failed to abstain from eating. I remember a patient who, after a half hour of narcosis, had intense retching and vomiting of undigested grapes, eaten five hours before. Another, I was told, had dilated pupils for two days, and could not read during that time. Still another was anesthetized by me seven times with nitrous oxid. At the last three, on her return to consciousness, she had a look of most abject terror depicted on her countenance, and persisted in screaming very loudly. This patient complained of inability to breathe: that is, she could not get sufficient air. Her pulse, respiration and color were good. Hysteric attacks occasionally occur following the use of nitrous oxid and oxygen, and excitement, though rare, occurs far more frequently than when using the gas alone. Glycosuria was observed by me in three cases following the use of nitrous oxid alone.

Nitrous oxid is more expensive in a long operation than ether or chloroform; used to precede ether, it is less expensive than ether alone. The gas, used by the rebreathing method, is about as expensive as when using the pure nitrous oxid. Nitrous oxid and oxygen make the most expensive method of anesthetization. In an operation for double amputation of the breast, and excision of axillary contents, in a patient aged 76 years, and lasting two hours and forty minutes, it took 220 gallons of nitrous oxid and 60 of oxygen, together costing $7.40, and in this case a minimum quantity of the gases were used. Another case, a nephrectomy lasting two hours and fifteen minutes, took 350 gallons of gas and 80 of oxygen. In a vaginal hysterectomy lasting one and a half hours, there was consumed 200 gallons of nitrous oxid and 70 of oxygen.

In conclusion I would say that while, for various reasons, nitrous oxid is not generally applicable, yet in cases where for any reason it is undesirable to give ether or chloroform, or where the anesthetic factor combined with the operation would be more, probably, than the patient could survive, it is particularly indicated and satisfactory, and very rarely fails.

225 West Forty-fifth Street.

Itching of the Anus.

R.	Sodii hyposulphitis	30 parts
	Acidi carbolici	5 parts
	Glycerini	20 parts
	Aquæ	450 parts

Mix. Compresses wet with the solution are to be applied to the anus frequently.

EXPERIENCES WITH ETHYL CHLORID IN GENERAL ANESTHESIA.*

BY JAMES P. TUTTLE, M.D.
Surgeon A. H. and W. H. Hospitals; Professor of Rectal Surgery, New York Polyclinic.
NEW YORK CITY.

For many years ethyl chlorid has been known as a local anesthetic, and to some few as having properties of a general one through inhalation. Its use has never been very general, however, and information concerning it has been very meager until recently. Almost all physicians have used the drug as a local anesthetic, some more and some less extensively. In this manner, it has never compared with cocain, and can never supersede that drug. I do not propose to go into the literature of kelene anesthesia, but during the discussion of general anesthesia, it might be well to make public some experiments I have been making for the past three months with ethyl chlorid as an adjuvant to ether anesthesia.

After reading the report of Army Surgeon Weisner, in November last, I determined to give kelene a trial as a general anesthetic. Accordingly, having obtained a graduated tube, with a proper sized aperture for general anesthesia, I made my first experiment on November 15. My patient was a strong, well-developed man of 45, suffering from a fatty tumor under the border of the scapula. The kelene was administered and insensibility to pain produced in four minutes. The muscles, however, did not relax to give me easy access to the tumor, and as I had no encouragement to suppose they would so relax, from the experiences of Hecker, Weisner and others, I ordered my anesthetist to change from kelene to ether. In less time than it takes to tell it, my patient was entirely under the influence of ether and the muscles entirely relaxed. Indeed, so rapid was the effect at first produced that I was alarmed; but as there were no symptoms to justify alarm, I went on with my operation. The result in this case was so happy that I determined to try it on my next patient, one with hemorrhoids. In such cases kelene would not prove a satisfactory anesthetic, because it does not relax the muscles, and here this relaxation is absolutely necessary. Therefore I administered the kelene for three and a half minutes, or until the patient was insensible to touch of his conjunctiva or to the pricking of a hypodermic needle. The Ormsby ether inhaler was then applied, and in two minutes by the watch our patient was completely anesthetized and relaxed, making in all five and a half minutes for the complete anesthesia.

So pleased was I with the results in these two cases, that I began a series of experiments with the drug as an adjuvant to ether anesthesia. The method employed was as follows: A graduated tube of pure ethyl chlorid, with a larger aperture than that ordinarily used for local anesthesia, was employed. An Esmarch chloroform inhaler, covered with several layers of gauze, was placed over the patient's nose and mouth; the kelene was then sprayed on its under surface and the patient directed to inhale deeply. The spraying was renewed whenever the vapor ceased to appear on the patient's exhalation. As soon as the patient became insensible to the prick of a needle or the touch of his conjunctiva, the Ormsby ether inhaler was applied and the anesthesia completed.

I wish to record forty cases. I will not present them in detail, as they vary only in the time consumed in producing anesthesia, which in the successful cases never

*Read in a Discussion on Anesthesia, before the New York County Medical Association.

exceeded seven minutes. I shall detail one case, simply as descriptive of all the others.

J. G., a grocer's clerk, 35 years of age, of ordinary habits had hemorrhoids. Pure ethyl chlorid inhalations were begun at 3:10—pulse 74. Insensibility to touch was produced at 3:12½—pulse 80. The ether cone was applied at 3:13. The patient was completely relaxed and ready for the operating-table at 3:15, just five minutes after the commencement—pulse 80. Consciousness was apparently never lost during the kelene administration. I could talk to the patient and receive answers up to the giving of the ether. He responded when requested to breathe deeply, and would move whichever hand I indicated. There was a momentary spasm of the glottis when ether was begun. There was no struggling and no cyanosis. The patient recovered from the ether ten minutes after the removal of the cone. He had no nausea nor vomiting; in fact, no symptoms that would indicate that he had taken an anesthetic. The amount of ether used was not measured. The thirty-nine other cases, with four exceptions, were practically the same, some of them taking more and some less time, the shortest three and a half minutes, the longest seven. In some cases there was more or less struggling for a minute or less when the ether was begun, but these were isolated cases where the kelene anesthesia was not carried far enough. Ordinarily, I was able to speak to the patient, telling him that the ether would strangle him a little, and thus control him until a few deep inhalations had been taken, thus putting him beyond the point of consciousness. At this point an unconscious struggle may occur, but only in a small minority of patients. Recovery from the ether was always rapid. In a few cases there was some nausea but, on the whole, I think I may safely say that this disagreeable feature of ether anesthesia was greatly reduced. I inquired of a number of patients whether they had any recollection of the application of the ether cone and of the slight struggling it produced, receiving a negative reply in every case.

In the reported patients there were four in whom the use of the drug was unsatisfactory. Two of these, it would seem, were insusceptible to the influence of ether, and in both of them I was finally compelled to resort to chloroform, before I could induce anesthesia and relaxation. In another the ethyl chlorid seemed to have no effect whatever, and even after it was discontinued and ether used with the greatest freedom, it required over twenty-five minutes to induce anesthesia. The fourth was a woman so anemic, and with such feeble circulation and shallow respiration, that it appeared that neither drug was absorbed rapidly enough to produce quick anesthesia. It took more than fifteen minutes to anesthetize her. These four, however, were none the worse for having tried kelene, and I am certain the drug had no influence in retarding the ether anesthesia. The method of using the drug has been described above.

The amount of ethyl chlorid used varied from 10 to 20 c.c. I consider it important to have a graduated tube with a large aperture, so that the drug will not be wasted by evaporation, as it is sprayed on the mask.

The requisites of a perfect anesthesia are: 1. Safety to the patient. 2. Insensibility to pain. 3. Complete relaxation. 4. Easy and rapid production of effect. 5. Freedom from disagreeable or dangerous after-effects. 6. Simplicity of administration. After more than fifty experiences with this drug in connection with ether, it seems to me that most of the above requisites are met with by this combination. The time required has been less than that required with nitrous oxid as a precedent to ether. There have been no accidents and no physical symptoms which would lead us to believe the drug, thus administered, anything but perfectly safe. The amount of ether used has been greatly lessened; the recovery from anesthesia much hastened; nausea and vomiting are practically obliterated, and the elements of shock have been greatly reduced. Moreover, we have had no experts, but simply an operative surgeon—the author—and the ordinary house surgeon, to administer it. There is no complicated, cumbrous and costly apparatus necessary for its administration, and it does not require a Saratoga trunk to carry it around. If such experiences with kelene shall be verified, it seems to me its use will shortly supersede that of nitrous oxid, and much of the dread shock and disagreeable experiences of general anesthesia be done away with.

35 West Forty-fifth Street.

DISCUSSION ON PAPERS OF DRS. WYETH, BENNETT, GOLDAN AND TUTTLE.

DR. HOBART A. HARE, Philadelphia, invited to open the general discussion, said that he is opposed to the cumbersome apparatus that had just been exhibited for use in administering ether and chloroform, for he believed the apparatus should be simple, and, above all, so constructed as to allow of easy and rapid cleansing and sterilization. There is good reason for believing that many pulmonary accidents originate from using these closed inhalers with their attached bags. Whenever he has witnessed a person anesthetized by the use of one of these bag inhalers, he has been impressd with the fact that, while doubtless the patient was anesthetized primarily by the anesthetic agent, he was anesthetized secondarily by carbon dioxid, and in addition was quite probably still further benumbed by inhaling the poisonous effete material exhaled from his own lungs. It does not seem to him wise to obscure the effects of the anesthetic by the other factors, even supposing they are in themselves harmless. The inhalers most in vogue in Philadelphia are the folded towel for chloroform, and the towel cone or the Allis inhaler for ether. He expressed astonishment at Dr. Wyeth's statement that chloroform is more dangerous in children than in adults, for this is con-

trary to general teaching, and certainly does not find support in medical literature. Ether seems to him particularly objectionable for children, because it is so liable to set up, by irritation, an inflammation of the delicate mucous membrane lining the respiratory passages of the child.

As regards the effect of chloroform on the heart, Dr. Hare took the ground that chloroform does not primarily exercise a distinctly depressing influence on the left heart in a healthy person, but that the numerous cases of sudden circulatory failure, reported in connection with the use or chloroform for anesthesia, are to be explained by vasomotor paresis. It is perfectly possible for a person to bleed to death into his own arteries. In illustration of this view, he reported a very striking case. While watching a colleague administer chloroform in a private hospital, the patient suddenly become absolutely pulseless, and, at his suggestion, the abdominal aorta was quickly compressed with the hand. The result was an immediate restoration of the heart's action. If death from chloroform is not due to vasomotor failure, then it is the result of a paralyzing action on the respiratory center. The reason that atropin, when administered shortly before beginning the anesthetic, gives a better anesthesia, is that it is an excellent vasomotor stimulant. For the reasons already given, he is in favor, in very feeble persons, of bandaging the limbs, or even of applying an abdominal compress over the aorta, before anesthetization.

He expressed pleasure that some medical men, like himself, had been asked to join the surgeons in this discussion on anesthetics, for physicians see a somewhat different side of this most important question. This is particularly true of the shock which not infrequently follows the use of any anesthetic. He has repeatedly known persons to recover satisfactorily from the immediate effect of an operation, and yet carry a distinct stigma of the anesthetization for months, in the shape of a vague nervousness, or an ill-defined state of ill-health apparently attributable to the shock received at the time of the anesthetization. He said, particularly for the benefit of the young hospital interne, that if the anesthetic is properly administered, the patient's head being kept in proper position, and the jaw properly manipulated, there should seldom be any occasion for the use of the tongue forceps. While he is of the opinion that the previous use of morphia tends rather to increase the tendency to nausea and morphia after anesthetization, this can be controlled very satisfactorily by combining the morphia with nitroglycerin. In the presence of valvular disease of the heart he would select ether in preference to chloroform, and the same is true of cases of fatty heart. He would also prefer to use ether in young athletes, for experience shows that this class of persons is specially liable to accidents with chloroform.

DR. R. COLEMAN KEMP briefly described the physiologic experiments which he has carried on in conjunction with Dr. William H. Thompson, with a view to determining the effect of various anesthetics on the heart and kidneys. These experiments demonstrated that ether apparently exerted a selective and deleterious action on the kidney, causing relatively a greater constriction of the renal vessels, and inducing more marked albuminuria than does chlororform. With the ACE mixture the chloroform effect in depressing the heart's action had been noted, together with the typical effect of ether on the kidneys. The Schleich mixtures, when given with the closed inhaler, also gave the chloroform heart and the ether kidney. Anesthol, a mixture of ethyl, ether, and chloroform, depresses the heart and circulation. Where the kidneys are damaged or suspected to be, nitrous oxid gas and oxygen seems to be the safest anesthetic, unless the patient is atheromatous. As regards the kidneys, chloroform is a close second to nitrous oxid gas.

DR. FERDINAND HASBROUCK, speaking for the dentists, described his method and apparatus, and asserted that although he had administered nitrous oxid gas many thousand times he had never lost a patient. He laid special stress on using a tube of very large caliber to convey the gas to the mouthpiece. He has had a fairly large experience with the administration of this anesthetic for operations lasting one or two hours, and he has not noted any very great difficulty in maintaining a proper anesthesia.

DR. R. H. M. DAWBARN made the assertion, which he declared was based on statistics in the possession of Drs. Kemp and Thomson, that nearly one patient in nineteen in our hospitals here dies from ether narcosis, though it is recorded under other names. The fact that he personally had not had a single death from suppression of urine after etherization or from ether pneumonia, in the past ten years, he attributes largely to his use of a simple modification of the Clover inhaler. By breathing the ether over and over in such a bag inhaler, the ether is warmed, and a fruitful source of irritation of the respiratory passages thereby eliminated. According to Dr. H. C. Wood, of Philadelphia, carbonic acid anesthesia is not dangerous, and hence this oft-repeated objection to the closed inhaler "falls to the ground." The use of 1/150 gr. atropia and of 1/6 gr. morphia, with a little whisky, shortly before administering an anesthetic, reduces the quantity of the anesthetic required, and tends to eliminate one great cause of shock—fear.

DR. J. A. BODINE alluded to a discovery of Dr. Andrew H. Smith, that when acid urine is shaken in a test-tube with ether, a gelatinous material is formed. He suggested that as this does not occur when the urine is alkaline, some of the irritation of the kidney, consequent on the inhalation of ether, might possibly be avoided by adopting such measures as would render the urine alkaline at the time. He laid great emphasis on fright as a dangerous factor and narrated a case in which the findings at autopsy, as well as the clinical history, seemed to justify the assumption that death had been brought on by fright at the thought of taking the anesthetic. To diminish this fright, he favors the use of morphia.

DR. A. ERNEST GALLANT described a simple ether inhaler that he had devised. He said that it could be improvised from a piece of stovepipe or iron leader-pipe, three inches in diameter and 3½ inches long. The lower portion of the frame is covered with a layer of absorbent cotton, held in place by an elastic band, and the pipe itself is loosely filled with gauze. A newspaper, folded eight inches wide, and wrapped in a towel, is then wound tightly around the frame, both ends being left open.

DR. J. W. DRAPER MAURY said that the use of chloroform after nitrous oxid is likely to induce vomiting, and moreover, the use of chloroform under these conditions is likely to lead to serious cardiac depression.

DR. M. L. MADURO spoke a word in favor of Schleich's mixtures, and added that no matter how interesting might be physiologic experiments, such as those made by Drs. Kemp and Thomson, their results had been more than offset by extensive clinical experience.

WHAT ARE THE MOST EFFICIENT AND PRACTICAL MEANS FOR LIMITING THE PREVALENCE AND FATALITY OF PULMONARY TUBERCULOSIS?*

BY N. S. DAVIS, M.D.
CHICAGO.

There is no other subject within the domain of medicine that appears to be attracting the attention of the profession at the present time to so great an extent as the prevention and treatment of tuberculosis. And certainly no other disease has greater claims on our attention, an account of its very general prevalence in all the countries of Europe and America, and the great mortality occasioned by it, being equal to one-eighth of the total mortality from all diseases.

To enable us effectually to devise and execute means for preventing or limiting the prevalence of any given

*Presented in a Symposium on Tuberculosis, before the Section on State Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

disease we must know something of its causes, or, at least, of the conditions under which they become active as well as of the conditions under which they cease to act or are destroyed. Consequently, a correct and full knowledge of etiology contitutes the only legitimate basis for preventive medicine. It is true that in times past much useful work was done to limit the prevalence of both endemic and epidemic diseases, by carefully studying the conditions under which they prevailed, without knowing the specific causes to which the conditions gave rise, and on which the diseases depended. From a very early period in the history of medicine it was well ascertained by clinical observation alone that all the varieties of continued and periodic fever originated from some subtle poison that was generated in moist soils containing much decomposable vegetable matter, or in ill-ventilated and uncleanly houses, or in water and soils impregnated with animal matter or excretions. These conditions were recognized as giving rise to poisons which were termed koino- and idio-miasms; and the laws governing their development and activity were studied with so much success that many of the more important sanitary measures of modern times were founded on them, long before the essential nature or composition of the several miasms could be ascertained. For the latter, the profession had to wait until the progress of physics had developed the binocular microscope for our use, as the only instrument by which the bacteria of fermentation, decomposition and septic poisons could be revealed to the human eye, and the more exact conditions of their development and propagation could be studied in connection with each disease.

The same may be said in regard to the causes and prevention of pulmonary tuberculosis. Persistent and careful study of the conditions that favor the prevalence of tuberculosis long since accumulated an array of facts sufficient to demonstrate that the prevalence of the disease was greatly increased by living in small, ill-ventilated and damp dwellings located on wet or undrained soils; by sedentary habits and close, indoor occupations; by habitual use of alcoholic drinks; by continued mental anxiety and depressing mental emotions; and by hereditary influence. The influence of these facts in guiding physicians and sanitarians to such improvements in the management of tuberculosis as have resulted in the saving of many lives, is well-known to all who have given attention to the subject. But the discovery of the tubercle bacillus by Koch, as in the identification of pathogenic bacteria in connection with many other diseases, quickly concentrated almost the entire attention of the profession on the bacillus and the means of exterminating it, regardless of all previous knowledge of predisposing and prophylactic influences. It was hastily assumed that inasmuch as the disease was caused by a specific germ, or at least accompanied by the development and multiplication of such during its progress, it must be regarded as contagious or communicable from one individual to another by contact or close proximity, and therefore treated by isolation, disinfection and by germicides or antitoxins, on the same principles as we treat variola and other fevers caused by well-known specific viruses. Consequently, the unfortunate consumptive began to be avoided as far as possible and required to catch and disinfect and destroy his sputum, or, at least, not spit in the streets or in public conveyances, lest the bacilli contained therein should, after becoming dry and mingled with the dust, be inhaled by the community and thereby spread the disease. And to more certainly prevent this, some genius proposed having all the members of the community wear antiseptic gauze over the mouth and nostrils. Numerous bactericides have been and are being given, and the laboratories of experimental bacteriology have been taxed for tuberculins and antitoxins, all for the purpose of either neutralizing the specific germ or rendering the living body immune to its effects. At the present hour the most extensive plans are being organized, both in this country and Europe, in favor of destroying all tuberculous cattle so as to prevent the infecting bacillus from coming in our meat and milk, and of segregating all consumptives in sanitariums or colonies for their exclusive occupation, isolated as much as possible from the rest of mankind. It will be noted that all these measures are designed for the isolation and ultimate destruction of the bacillus, which is assumed to be the sole determing cause of the disease called tuberculosis. Yet they are all applied, or become operative, only in individuals after they are already sufficiently tuberculous to render a bacteriologic diagnosis possible.

The cow or animal is not slaughtered until the proper tests show her to be actually tuberculous, and may have been spreading her bacilli not only among the herd but over the whole pasture over which she roamed for weeks or months. The human subject is not isolated in the sanitarium or colony nor treated with germicides nor antitoxins until the morbid processes have so far advanced as to render the diagnosis obvious, which is generally several months after the evolution of bacilli has commenced. For tuberculosis, unlike the acute infectious fevers, commences with no well-defined period of incubation, nor runs any definite self-limited period of time, nor does one attack render the individual immune to future attacks. On the contrary, its beginning is insidious, slow, and, in the majority of cases, its progress is through several months before its presence is suspected or even a physician is consulted. Consequently, if it is true that the escape of the tubercle bacillus in the sputum and moisture of the breath, in the meat and milk of animals, or in any other eliminations, is capable of impinging on and infecting the walls and furniture of dwellings, or drying up and floating in the atmosphere of streets and public places sufficient to infect those who inhale it, then certainly the measures that are now occupying so much attention can never do more than to afford a very limited amount of protection from the propagation of the disease. Furthermore, if the tubercle infection or bacillus is thus spread in an active state, it must have been, long since, diffused in almost every inhabited township in Christendom. And had it been contagious in the same sense as are the infections of variola and rubeola, the human race would have been annihilated by it centuries since. But abundant clinical observation has shown that the infective power of the tubercle bacillus through simple contact with the sick or by atmospheric transmission, is successfully resisted by the natural processes of vital resistance possessed by the healthy living human body. For few persons in civilized communities reach adult age without coming in contact with, or in close proximity to, persons laboring under tuberculosis, yet a very large majority of the entire population live and die without developing any signs of that disease. Physicians and nurses who have been in almost daily contact with cases of tuberculosis, both in hospitals and in private practice for years, have developed no greater ratio of attacks than have been found in the people of the same localities; and even numerous cases are on record in which the tubercle bacillus was found in the upper air-passages of persons in good health without any injurious effects following.

The correct inference from all this is, not that the bacillus is harmless and of no importance, but that the natural vital resistance, when in full vigor, is sufficient to render the human body immune to its attacks, and that it only becomes effective in the production of disease when the natural standard of vital resistance had become defective or impaired from other causes. Or, as was well stated by M. Jaccoud,[1] the tubercle bacillus belongs to a group of pathogenic microbes called "etiological dualisms," because they may exist in healthy organisms an indefinite period without injury to the latter, and become noxious only in consequence of changes in the organism itself, from other influences. Hence, he says, in reference to this class of microbes: "Pathogenesis, by changes in the organism, is the rule, and the traditional etiology, based on heredity, congeniality, predisposition, constitution, temperament, or on somatic or cosmic influences, retains all its force. These multiple and variable elements are the *true causes* of disease; the microbe is only the instrumental agent." Logically then, the true field for sanitary work in exterminating the bacillus of tuberculosis is in removing the defects, imperfections and impairments of vital resistance in the living body that make it possible for the microbe to multiply and produce disease either in man or animals. Prevent the formation of the necessary soil and you make sure of preventing the crop. But leave all the important agents and influences that are actively at work in preparing the soil by diminishing man's vital resistance to the microbe, and your crop will continue to appear even though you cremate it as fast as it is harvested. As I have stated elsewhere, the chief elements of vital resistance possessed by the living human body are the inheritance of vigorous, primary cell-bioplasm, leucocytic, internal oxidation, metabolic and excretory activity. And it is only when these elements have been impaired by persistent depressing mental emotions, such as anxiety, despondency, or grief, or by living in overcrowded, ill-ventilated houses on damp soils, or by insufficient food, clothing and open air exercise; or by the use of alcoholic drinks and other anesthetic and narcotic drugs, or by prior attacks of other diseases; or by hereditary defects of organization, that the tubercle bacillus is able to develop its destructive effects on the human organization. If this is true, the great leading object should be to so instruct the people that these various causes of vital impairment would be avoided. The sanitary authorities should, with increased vigor, continue their work of everywhere enforcing cleanliness, house ventilation, soil drainage, pure water, wholesome food, and the discontinuance of the use of all varieties of alcoholic drinks and narcotic drugs, which so invariably diminish nerve sensibility and vital resistance to all morbid agencies. In so doing they would accomplish vastly more in limiting the spread or prevalence of tubercular disease than by all other agencies combined. And in this work the authorities should be efficiently aided by every physician who gains access to the fireside and confidence of a family. Every family physician should regard it as one of his most important professional duties to note the special morbid tendencies of all the families who rely on him for medical services, and be as careful to point out the means for correcting them as he is to prescribe medicines when they are actively sick.

In conclusion, I would say, continue to take care of the infected sputum and cattle, and provide as good sanitariums as possible for those already tuberculous, but as the bacillus or germ is already diffused over both hemispheres, our success in preventing it from germinating and continuing its annual harvests of death will depend mainly on the efficiency of our efforts to restore and maintain in their full vigor, the natural conditions and processes of vital resistance to toxic agents possessed by the living human body.

[1] Semaine Méd., January, 1897.

PREVENTION OF TUBERCULOSIS.*

BY HOMER M. THOMAS, A.M., M.D.
CHICAGO.

Of the seventy-five million people in our land to-day, ten million or more will die of tuberculosis, unless we develop methods for its prevention. The age of those dying from tuberculosis averages from 18 to 40 years. This is the most productive period in the individual life. The best results of education, culture, and labor are then achieved. The climax of one's usefulness in the world is at its zenith. What an appalling fact, then, to appreciate that from 14 to 15 per cent. of all these deaths occur from a disease which is absolutely preventable! Viewed from the standpoint of money loss alone—$5000 being the amount a human life is valued at in Illinois—all the expenses for maintenance of our great government are not to be compared with the financial loss sustained by the nation from tuberculosis. How the people live is one of the most pertinent questions that can occupy our time, and through what causes and at what ages they die is of equal importance. Nothing can be of higher value than teaching the race how to live longer, healthier, and happier lives. Confident hopes are now entertained that tuberculosis can be exterminated as a disease, and the present active interest on the subject of its prevention is worthy the serious consideration of all. Pathogenic microbes that have the bacillus of tuberculosis are doubtless the most widely disseminated. No one is absolutely free from the possibility of their infection. The general results of post-mortems show that an average of from two-fifths to one-half of all persons dying, from whatever causes, give evidence of tubercular infection of the lungs—the region where this germ exerts its most deadly action. The truth of this observation has been confirmed in the living by the use of the Roentgen ray. It appears to be a fact that tuberculosis has, within recent years, been diminishing in importance as a cause of human mortality; this may be due to our better knowledge of the nature of this special disease, the best means of avoiding and counteracting it, general hygienic environments, and improved modes of living. Tuberculosis in some form or other may fairly be considered the universal disease of the race.

Biggs demonstrated characteristic lesions in the lungs alone in 60 per cent. of his post-mortems. Grawitz found primary tuberculosis deposited in the lungs in 152 out of 221 patients, being nearly 70 per cent. of all infections. The mortality among civilized people is usually less, one-seventh, or 14 to 15 per cent., but the death-rate from this disease at present is often from 40 to 50 per cent. It is estimated that a consumptive expectorates, at times, as many as seventy millions of the bacilli in twenty-four hours. If the sputum contains these germs, and it is not properly disposed of, if it dries on the floor, about the clothing, in the handkerchief, or on the beard, it will soon become pulverized and inhaled by those who come in contact with it. Should these be vigorous and well nourished, there is little fear of contamination, for a healthy nasal mucous membrane has strong bacteri-

*Presented in a Symposium on Tuberculosis, before the Section on State Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

cidal properties. Should, on the other hand, others have a lowered vital resistance, they will probably acquire tuberculosis. To make our conception of tuberculosis sufficiently comprehensive, we must include not only the bacillus but changes in the cellular and the chemical constitution of fluids and solids brought about by its activity. There is a condition which makes the human tissues a receptive soil and a favorable culture-medium for the tubercle bacillus. That state of the system which might be termed a diathesis or susceptibility, being a departure from the normal health standards, is a disease in itself and undoubtedly an important element in the morbid changes of tuberculosis.

The mode of entrance of the tubercle bacillus into the body is: 1, by the lungs; 2, by the alimentary canal, and 3, by inoculation of the skin. The infection leaves the body mainly in sputum coughed up from the lungs, and also may occur in secretions or excretions from other diseased organs. The infectious sputum is mainly that from the lungs. The tubercular sputum, when dry, is especially dangerous. The tubercular sputum of inclosed air-spaces constitutes a far greater danger than that which remains out-of-doors. The preservation of the vital infectious material is secured by the protection afforded in inclosed areas, as rooms, workshops, railway cars, state-rooms, cabins, etc. The out-door group is subjected to the same influences, but in a much less degree. Ventilation is not needed, since the out-door air affords the necessary protection from its enormous diluting powers. Diseased germs lose their vitality under the destructive influence of the air, the sun, and the rain. The chief danger arises from the conveyance of such material in-doors on boots, shoes, and skirts.

With reference to tuberculosis in dogs, Dr. Walter H. Sheldon[1] states that a study of the subject in veterinary journals, and books treating particularly of diseases of dogs shows that it is more common than is generally supposed. The dog is far from being immune to this disease. In these times when dogs are fondled by children and are allowed to live long for association's sake, there is frequently real danger of the spread of this disease through them. In thirty-four essays, mostly in German and French, over 150 cases of tuberculosis in dogs are cited, all of which were authenticated by finding the bacilli. The compiler draws the following conclusions: 1. Tuberculosis, probably of the mammalian type, is not as rare in dogs as is ordinarily supposed. 2. Dogs are prone to become infected by licking up the sputum of tubercular patients, but the location of the primary point of the lodgment in such cases is not yet clear. 3. The gross lesions of tuberculosis in the dog resemble those of the subacute and chronic forms found in man, especially when the pericardium is involved. The absence of caseation and the absence in its case of giant cells are points of deviation from the common type of human tuberculosis. Dogs with cough, emaciation, or other symptoms that may be due to tuberculosis should, as a prophylactic measure, be killed. They may spread the disease, especially if the lungs are involved. We are warned, in a recent editorial[2], that disease is often communicated to human beings by their animal pets. More than 10 per cent. of canaries and other captive birds die of tuberculosis, and most of the monkeys in captivity succumb to the same disease, so that a child's visit to the monkey-house in a zoologic garden may be a source of infection. Recent examinations of dogs show that of these animals, which have been regarded as very refractory to this disease, fully half are subject to it in a greater or less degree. Parrots are known to be peculiarly susceptible to a disease so peculiar to themselves that it is called from the Greek word for parrot, psittacosis. A number of fatal cases in human beings, of what was at first supposed to be a malignant influenzal pneumonia, were in Paris traced to the bacillus at present thought to be causative of the parrot disease. A certain proportion of parrots are known to die from tuberculosis. Cats are known to sometimes have tuberculosis, and that they have in many cases been carriers of diphtheria and other of the ordinary infections, directly and indirectly, is more than suspected. These would seem to be the facts in the matter. They are, perhaps, not enough to justify a crusade, on sanitary grounds, against the keeping of pet animals. These animals are, however, the fad of the day. They are multiplying more and more, and it does not seem unreasonable, nor is it dictated by any desire to produce a sensation, that we should demand of their owners care in the matter of detecting the first signs of disease in them, and then so guarding them as to prevent their being a source of contagion to man. Especially does this warning seem necessary with regard to children. With them the animals play more freely, and readier opportunities for infection are given. Moreover, growing children are less resistant to disease, and they present excellent cultural opportunities for micro-organismal growth when implantation has once taken place. The older and better informed people may take foolish risks, if they will; there should be no such option in the case of children.

From my own observation I am of the opinion that in many instances diseased caged birds, such as canaries, communicate tuberculosis, to a certain extent, among human beings. As about 400,000 canaries are reputed to be sold every year in the United Kingdom, and as it is stated that tuberculosis is one of the most common diseases of birds, it does not seem unlikely that the canary may have considerable influence in the distribution of tuberculous infection. (Dr. Tucker Wise: The Hospital).

Dr. Paquin raises the question whether the marriage of consumptives should be discouraged. What should we, as medical educators, say in reference to the relation that marriage sustains to the propagation of consumption? Too long has the scientific world viewed this ground as too sacred for decisive invasion. The medical practitioner has avoided the duties which his knowledge commands he should exercise. We have earnestly labored to educate the people regarding the grave danger arising from the tubercular infection from all other sources, but the unavoidable danger in the marriage of consumptives has been either timidly considered, or, if at all, but slightly discussed as it should be. Science is justified in attempting to regulate the ground-work of human constitutions, so as to produce the best physical, mental and moral health. Scientific teachings are lax in exerting the force of their knowledge toward influencing the prevention of consumption as it occurs through the family relations. I appreciate that in the study of this problem we are confronted at the start with complicated and grave conditions to manage. The soul and moral forces of man and woman, with respect to marriage, are hard to educate. Marriages, as a rule, are universally entered into without proper reflection or regard of physical, mental, and moral defects. The close union and intimacy of married life brings the infectious principles into each other's lives. The home may become a foci of tuberculous pollution. It therefore follows that the healthy person marrying a consumptive is very seriously exposed, in a way, to contract the disease. When this occurs you at

[1] Medicine, February, 1899. [2] Medical News, April, 1899.

once have two parties suffering from the disease instead of one. Children born of consumptives, whether their constitutions are weak or not, are predisposed to the development of the disease, because their surroundings are continually infectious; and those thus feebly constituted have necessarily a favorable soil for the growth of the germs of tuberculosis in their system. What means should we establish to prevent such marriages? As physicians, we should assiduously discourage them and educate our patients to properly guard themselves against tuberculosis; again, public lectures should be given as a means of general education on this subject.

Dr. Ravenal says: "Of all diseases to which the animals from which we derive our food are liable, tuberculosis is the most prevalent, the most far-reaching in its effects, and it seems not unlikely that there is a close connection between the prevalence of the disease in man and in our food animals." An examination of the geographic distribution of tuberculosis reveals the fact that there is a close connection between the presence and absence of tuberculosis and the presence and absence of healthy cattle. In northern Norway, Sweden, Lapland and Finland, where reindeer constitute the bulk of farm animals, or about the Hudson Bay, and in the islands of the Pacific, where no cattle exist, in the Scottish Hebrides, Iceland and Newfoundland, where there are only a few cattle, tuberculosis is far less prevalent in man. In Algiers the cattle are few, and live, for the most part, in the open air, away from cities, and it is found that tuberculosis does not increase among the natives. In Italy, where cattle are housed, Perroncito states that tuberculosis has become the scourge of man and beast. No disease known attacks more numerous genera of animals than does tuberculosis. The bovine species is the most susceptible, but the disease is found in chickens, guinea-pigs, swine, rabbits and goats, and also frequently in caged apes, lions, kangaroos, deer, elk, gazelles and birds, and in one case, noted by Theobald Smith, in a tame bear. Among animals usually thought to be exempt, such as dogs, cats, sheep and horses, the disease can readily be produced by inoculation.

The conclusions of the royal commission on tuberculosis are: As to the proportion of the tuberculosis acquired by man through his food or through other means, we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk, containing tubercular matter. The remedy lies in the careful inspection of milch cows and the immediate weeding out of all diseased animals found. Milk from suspected cattle should be sterilized before using and especially should not be given to infants or invalids. Inspection of the animals should be at intervals frequent enough to prevent the disease from gaining headway before being discovered. Milk containing the bacillus of tuberculosis may be the cause of tubercular meningitis and tabes mesenterica of infants, the infection being by way of the intestinal glands. The benefit of strict inspection of cattle slaughtered for food is shown by the distinguishingly lower mortality from tuberculosis among the Jews in our American cities, as shown by the results of recent censuses. This fact is all the more striking when we consider that these people do not always live under the best hygienic conditions, and it must be ascribed, in the very large part, at least, to their rigid meat inspection.

The spread of tuberculosis by means of sputum and fine droplets expelled during coughing has been exhaustively investigated by Flugge of Breslau. He concludes that infection with dried sputum, ground up into fine dust, is unquestionably possible. The dried sputum alone is dangerous. There is another mode of infection, namely, the expulsion of fine drops of saliva mucus containing bacilli during the cough of tubercular patients, which constitutes a great danger. Of thirty-five tuberculous patients, 40 per cent. deposited droplets of mucus sputum containing tubercular bacilli on a slide held a half meter away from the mouth. The size of these droplets containing bacilli reaches as much as 30 mm. in diameter. The bacilli were found mostly in groups in the mucinous central part of the droplet. The intensity of the cough is of considerable influence; the stronger patients, who are walking about, throw a spray of sputum with tubercle bacilli farthest. Short violent coughs, while the mouth is partly closed and the lips somewhat puckered up, cause the droplets to go farther. The crucial demonstration of the liability of tuberculous infection, occurring in this manner, is furnished by another set of experiments in which Flugge succeeded in infecting guinea-pigs directly by the coughing of tuberculous patients. The guinea-pigs were placed in a disinfected room, and put into a specially constructed box so that their heads were turned toward the coughing patient; the distance between the latter and the heads of the guinea-pigs varying from 20 to 45 cm. The animals were exposed every second day for about three hours, for from several weeks to months. The result was that of twenty-five guinea-pigs which did not die from other causes, six developed symptoms of an inhalation tuberculosis. Thus the liability of infection through the expulsion of tubercular matter by means of coughing seems fully demonstrated from all points of view. The practical results of these experiments, generally outlined here, is that a person in the neighborhood of a coughing consumptive may inhale tuberculous droplets which are expelled from the consumptive during efforts at coughing, sneezing, or talking. Flugge formulates the following conclusions: Rooms in which tubercular sputum becomes dried on the floor, or other particles of dust, either caused by dry dusting of the room or by currents of air, offer danger of tubercular infection. Intimate association with coughing consumptives, especially when one frequently approaches the consumptive nearer than one meter, is dangerous. This applies especially to nurses, workers in factories, and other places where the room between the individuals is small. Both these sources of infection may be completely neutralized, or their danger much reduced, by simple preventive measures. Infection by coughing is easily preventable by the patient holding a cloth or handkerchief before the mouth during cough.

In preventive medicine there are two great lines of procedure: the first aims to remove or avoid the disease-producing agent—destroy tuberculous sputum; the second looks to an increase of the disease-resisting power, to render the individual or race less susceptible—more immune to the disease agents. What prevents ideal conditions which look to removing tuberculous sputum? Ignorance of the people, both rich and poor, and disregard of what constitutes real cleanliness of mind and body. A scientific demonstration of the spread of tuberculosis by infection has had the natural consequence of developing preventive measures. The general application of these measures, however, has been very much neglected. Properly conducted sanitariums for consumptives not only serve as hygienic educators of individuals but educators of communities as well. There can be no objec-

tion to the establishment of municipal sanitariums or special hospitals for consumptives. The sanitary benefits derived by all communities, large or small, have been clearly demonstrated. It can be shown that through the manifold creation of special institutions the commonwealth will be the financial gainer, and that these establishments would not increase the abuse of medical charity. According to the latest published report of the commissioners of public charities in New York City, the daily expenses per capita of the general hospitals is $1.16; thus a patient costs the city, up to his death $522 outside of the money expended for the family of the patient, should the latter have been its only bread-winner. The general hospitals claim many cases of pulmonary tuberculosis, and it seems almost as if this money had been uselessly spent, since a general hospital can not even be considered a safe place for isolating a consumptive. If the same patient had, for example, been treated at a properly-equipped sanitarium, and been sent there at an early period of his disease, he would have had 60 per cent. more chances for his recovery and would have cost only $1 a day, and that during a period of perhaps six or nine months.

Knowing the source of the disease and its methods of infection we have the means in our hands of controlling it, and that too without working hardships on loved ones, but in reality making life pleasanter and the chances of their recovery manifoldly greater.

The most fertile source of infection is from the sputum which, when dried, finds an entrance into the body. Therefore all patients must destroy the sputum before it passes from their control. The following suggestions will be helpful, as formulated by Dr. F. W. Reilly:

1. At home, expectorate into a cup kept for that purpose. This cup should be half full or three-quarters filled with a solution consisting of one part of carbolic acid to twenty of water. A solution can be made and kept on hand. The commercial carbolic acid is as good as the refined and is much cheaper. Burn the contents and boil the cup.

2. Never expectorate into a pocket handkerchief or cloth which will be allowed to dry. Keep the sputum wet, and best with the above solution. Soak handkerchiefs in the same and immerse them in boiling water before storing them with the soiled linen.

3. For use on streets, or when away from home let the patient be provided with thin Japanese napkins. After using fold them up with the sputum inside and burn at the first opportunity. A special pocket lined with waterproof material should be provided for these used napkins, and these pockets should be frequently sponged with the above-mentioned solution. Napkins can be had at a low price, about $1 per 1000.

4. Do not spit where domestic animals have access to this matter. Cattle and fowls are very susceptible and become in turn sources of infection. In fact, do not spit at all where sputum is not destroyed before it can dry.

5. Do not spit on streets, and never swallow the sputum.

6. No tuberculous person should kiss any one on the mouth.

7. Tuberculous patients should be smooth shaven. It is not possible to keep a beard clean and from being infected.

8. The tubercular must always sleep alone.

9. All bed clothing should be changed often—every day when the case is far advanced—and should be at once immersed in boiling water for five minutes.

10. Have separate table utensils and cause them to be scalded as soon as used, and washed separately.

11. Do not permit others to use a patient's personal property.

12. A tuberculous mother must not nurse her baby nor kiss it on the mouth and, in preparing its food, must observe special care.

13. Tuberculous persons should not engage in occupations where they are compelled to handle food-supplies. If this is unavoidable use every precaution to prevent infection.

14. Be careful not to infect sleeping berths when traveling. There is no need of isolating patients nor of depriving them of a single home comfort.

Next, I give a few directions to those who would avoid contracting the disease:

1. Avoid resorts devoted to the treatment of the tubercular.

2. Summer and winter, women must wear skirts that clear the walks by not less than four inches, and five or six would be better. Avoid all kinds of fur or soft trimmings around the lower border of dresses. Americans are expectorating animals and all the laws in the world, and all the good advice that may be offered, will serve only to diminish, but not eradicate, this nuisance. Note the filth, especially the sputum, on sidewalks. Skirts dragged through this are taken home, dried, brushed and cleaned, and then infection is introduced into the household. Especially reprehensible is the prevailing fashion of long "en train" skirts. It had been hoped the bicycle would prove to be the physical emancipator of woman, but if she persists in wearing long skirts it is a step backward, not forward.

3. Do not move into a house where your predecessor was tuberculous, without an efficient disinfection of the premises. To secure such disinfection have the walls cleaned of old paper and wash with a solution of mercuric chlorid, 1 to 1000. The woodwork should be painted after cleaning with this solution and all the floors thoroughly saturated with it. The solution is a poison.

4. Do not share a consumptive's bed nor use the personal property, including dishes, belonging to one.

5. Avoid tuberculous foods. Fowls and cattle are found to be especially susceptible of tuberculous infections. However, when food is thoroughly cooked infection is destroyed. Milk, especially that for children, must be from cattle free from infection. By heating it to 180 F., for half an hour, it becomes non-infectious.

6. Never put coins or other money in the mouth.

7. Never use a pipe or wind instrument belonging to a consumptive.

8. Probably the most important of all is to see that the digestive functions are kept in perfect order. Dyspepsia is more often a forerunner of tuberculosis than any other disease. The secretions of a healthy stomach will dispose of a large amount of infected material, but when diseased, the stomach is the principal avenue of infection.

9. Spend as much time in the sunlight and open air as possible. Keep sleeping and living rooms well aired and filled with sunlight, which acts as a powerful destroyer of the germ.

10. If possible to choose the site of your home, locate it on porous soil; if not, see that the drainings are perfect.

11. Protect all raw or wounded surfaces from any possible tuberculous infection.

12. Do not forget that every case of consumption comes from a preceding one.

Now that tuberculosis is known to be a communicable disease, and therefore a preventable one, the importance of recognizing cases, and of assuring purity of their surroundings, must be obvious. This can not be effected, however, without a knowledge of the existence of such cases, on the part of some centralized authority with intelligence and power to act. It is for this reason that the notification of cases of tuberculosis to health boards, or other like, or specially designated bodies, is of the utmost importance, and particularly so when the disease is among those who, by reason of carelessness, ignorance and want, are the most exposed and most subject others to the dangers of infection. Recent action on these lines by the government of South Australia, as cited by the *British Medical Journal,* is therefore worthy of the highest commendation and deserving of intelligent imitation. According to the legal act of 1898, assented to Jan. 4, 1899, by the government, with the advice and consent of the Parliament of South Australia, every medical practitioner attending on, or consulted by, any person suffering from pulmonary tuberculosis shall, so soon as the fact becomes known to him, report the same to the local board of the district in which the person resides. If the case has been previously reported, a second notification is not necessary. The practitioner is entitled to a fee of 2s 6d for his certificate. Disinfection is provided for at the discretion of the medical attendant or the health officer. Provision is made for the inspection of cattle and meat, and the destruction of tuberculous cattle, with compensation only when the diagnosis has been at fault. Milk from tuberculous cows can be sold only after having been boiled for ten minutes, and the board notified. The adoption of measures like the foregoing inspires the hope of a reduction of the prevalence of, and the mortality from, tuberculosis, that having already been set in motion, will go on with increased and increasing momentum.[3]

If any government is in earnest in its endeavor to effectually combat tuberculosis, besides the enforcement of laws against bovine tuberculosis, and thorough hygienic and prophylactic measures against this disease in man, it must take on itself the care and the treatment of the curable and incurable cases among the poor. We might create a commission of general practitioners and health officers to investigate the cases on the following lines: 1, determine the applicant's condition by a medical examination; 2, visit his home and institute such hygienic measures as seem necessary; 3, examine other members of the family and see if they have contracted the disease and if so institute proper treatment; 4, report in full to the sanitary authorities concerning the condition of the patient's dwelling. The dwelling may be so saturated with tuberculosis as to make it imperative to bring about its destruction, owing to the condition of the soil and of other sanitary defects.

To prevent the hopeless cases from communicating the disease to the large number of susceptible individuals with whom they will come in contact, to give the tuberculous patient, yet in the early stages of the disease, but with little, or no means, the best possible chances of becoming a well man and a useful citizen, we need municipal sanitariums. Let physicians, statesmen, and philanthrophists unite to further the creation of such institutions, for through them we will not only alleviate much suffering, but will solve one of the most important and difficult problems in medical and surgical science. Public school children should be instructed in sanitary science, and particularly to avoid spitting on the floors. The old slate, with its saliva, bred disease, and should be replaced by one that receives thorough antiseptic washes each day. The school floors should be thoroughly swept at least twice a week, and painted and sprinkled with antiseptic solutions. There is nothing which will do more for the next century than to impress on the children of to-day the lessons of prudence in sanitation. It costs but a trifle to prevent the spread of the disease in the schools, but it may cost many lives and vast sums of money to follow the neglected and industrious germ and attempt to repair the havoc which it has wrought. When we have properly cared for our public schools we may consistently demand from manufacturers and those who control public buildings the care which the city ought to assure to every child sent to the schools to take up life's work.

Churches are frequently a center from which is spread tubercular infection. The sacred communion cup may, and often does, become loaded with tubercle germs. The holy rite it commemorates, while saving the soul, may destroy the body. Individual cups, if only on sanitary grounds, should always be supplied. Again, the ventilation of churches is notoriously defective, the disease-laden air being confined, for the most part, from one Sunday night until the following Saturday, when a more or less perfunctory ventilation and superficial sweeping is instituted. This becomes a serious matter when we reflect upon the millions who frequent our churches. Urgent and stringent measures of reform on these lines are to be earnestly commended.

The British Medical Association gives these recommendations for the prevention of tuberculosis: Every house newly erected should be on a dry site and dry foundation, and have sufficient space around it to allow a free access of air and sunlight. These conditions should be enforced by regulations of a national and not a local character. Properly qualified men should be appointed as meat inspectors. Public slaughter-houses should be provided, and a compulsory examination of every cargo of imported meat, with large air-spaces in cow-sheds, that will permit a free ventilation. There should be a systematic inspection of all dairies and cow-sheds from which milk is sent, and exclusion of the milk if application of the tuberculin test to any cow, suspected of being tuberculous, is refused. The inspector should have power to take samples of milk from any special cow or cows, and power to prohibit the entrance of milk into any district, if there are reasonable grounds for suspicion of its being tuberculous. Local authorities should undertake, free of charge, the disinfection of the house in which a tuberculous patient has resided, together with the bed clothing and other articles capable of retaining infection. Local authorities should be encouraged to provide suitable accommodations for the treatment of consumptive patients. Medical health officers are advised to draw up leaflets for distribution, describing the precautions to be taken with patients, to prevent the spread of infection. A circular, stating the best method of selecting, collecting and preserving sputum and other excretions for bacteriologic examinations should be issued to medical practitioners. There should be compulsory disinfection of hotel rooms, sleeping-car berths, steamer cabins, and prison cells, which have been occupied by consumptives, before any other persons are allowed to occupy them. Railroad and steamship lines

[3] Philadelphia Med. Journal, May 6, 1899.

are constantly carrying invalids in great numbers. The transportation companies, which receive vast revenues from this traffic, should be compelled to thoroughly disinfect all cars and beddings so as to avoid the possibility of re-infection to others. Dr. Baker says: Three thousand new causes of tuberculosis each year, three thousand deaths, and six thousand persons constantly sick with consumption in Michigan implies a loss of more than $3,000,000 a year, and such an amount of human suffering, so entirely unnecessary, is simply appalling.

The annual reports of the Bureau of Health of the city of Denver, for the years 1897 and 1898, illustrated the good work that can be done by a well-organized and well-directed body, and they appear opportunely as a rebuke to, and a condemnation of, the political methods that have led to the removal of the efficient health commissioner under whose supervision most satisfactory results were brought about. Among interesting matters taken up was a collective inquiry as to opinions with regard to the communicability of tuberculosis and the means to be taken to prevent its dissemination. A majority of the 233 replies agreed in the communicability of tuberculosis and in the practicability of the restriction; were in favor of reporting and registering cases, of furnishing the patient with an educational leaflet giving information as to the care of the expectoration and the secretions, to be issued by the health board, and of disinfection by the health officers, of all apartments in which tuberculous patients have lived; and approved of the present plan of requesting the public, by placards, not to spit on the sidewalks or on the floors of public buildings or conveyances. A large number—108—favored making the spitting on floors of public conveyances and on sidewalks a nuisance and misdemeanor, punishable by fine; 163 opposed the placarding of apartments occupied by tuberculous patients in tenements and lodging-houses.

Tuberculosis is the prevalent disease in reformatory institutions, and is due to the close confinement of the inmates, absence of proper ventilation and sunshine in their sleeping accommodations, as well as when at labor. Warden McClaughry, of Joliet, says: The average death-rate the last ten years from tuberculosis has been 16.3 per cent. in every 1000; two died from it to one from any other cause. One reason for the scourge at Joliet is found in the condition of the cells. At present they are four feet wide, seven feet in length, and seven in height. In such narrow quarters two men are frequently put. Even with appliances for pumping air into the cells the ventilation is bad. The walls are of stone, and damp; hence the conditions are ripe to develop incipient cases of tubercular disease. They might never develop if the men were not brought there. But once in the damp cells, with their narrow limits, and crowded quarters, and their bad air, together with the mental depression and brood to which the convict is subject, if he has the taint in his system it develops. The object of imprisonment is for moral regeneration: not physical disintegration. We are justified in demanding of state authorities such hygienic environments as will, by their salutary effects, make impossible the acquirement of tuberculosis among the inmates, through any exciting cause within the walls of the institution. This is a simple humanitarian proposition, and its truth is so evident that it calls for no further elaboration at this hour.

Our sister republic, Mexico, in the city of that name, has furnished to the world an example of the ideal penitentiary. Under the supervision of Dr. Licéaga, she has constructed a building in general contour like the spokes of a wheel radiating from a central hub. Each wing has an abundance of outdoor ventilation, because entirely apart and free from contact with adjoining walls. The cells all face on green foliage, flowers, a variegated landscape, and have an abundance of sunlight. A large supply of pure running water is automatically sent to each cell every three minutes, day and night. Under such enlightened sanitary measures the physical well-being of the convicts is assured. Oh, that my own state might pattern after the example of the City of Mexico in these matters!

Having in this general way considered the underlying principles on which the prevention of tuberculosis must rest, having given in some measure the details for the carrying out of many of the principles of prevention involved, let us rally around these great principles for the maintaining of life and longevity, on which rests so much of the future happiness and prosperity of the human race!

The age of practical sanitation has come. This great work in the cause of humanity is in the hands of physicians and sanitarians. There is every probability that the absolute extinction of tuberculosis in the world is not far distant. It is inevitable that when the race becomes fully cognizant of the dangers from tuberculosis and the simple measures necessary to stamp it out of existence, they will rise and forever make this scourge a thing of the past. Most hopeful is the outlook for the accomplishment of this great result. Not alone are the masses awakening to the needs of the hour, but those in high places, even royalty itself, in England, is championing the cause of race emancipation from tuberculosis. Innumerable societies are springing up in every village, hamlet, and city throughout the land; prevention, like territorial expansion, is in the air, and so comprehensive is this reform in its scope that a great international conference for war on tuberculosis has, but recently, held sessions in Berlin.

"Let us all do something to restrict this disease, so that with the dawn of the new century, we may hope to see the tuberculosis problem solved, conquered at least in North America, by the most humanitarian methods; thanks to the combined efforts of physicians, statesmen, philanthrophists, health officers of states, provinces, and cities, and the good will of an intelligent people."

DISCUSSION ON TUBERCULOSIS.

DR. F. D. FERGUSON, of New York—I have devoted some time to this work, and, during the twenty-five years that I have been making post-mortems, I have taken every opportunity to study this disease, and I have found, in my experience, that about 60 out of every 100 persons who die from any cause are to some extent affected with tuberculosis. Some time ago I made up my mind to go into sanitary work, and just to-day I have been trying to get on a committee to investigate and report on means of preventing tuberculosis. From a pathologic point of view it is the most loathsome disease that we have; from a sanitary point it is the most widely scattered; and, furthermore, it is the disease that carries off more than any other one.

I have conducted several experiments with articles with which we all come in contact every day, and do you know that the paper bills that we carry in our pockets may contain tubercle bacilli which can be cultivated? I found that in experiments of some years ago. Again, the towels suspended in the lavatories of New York restaurants contain tubercle bacilli, as I also found. And these bacilli were in the circulating library books too. They are everywhere, and we come in contact with them whether we wish to or not. The grasp of the hand, the touch of the lip may carry infection, to say nothing of the danger of the communication of that disease from the lower animals to the higher. Facilities for contracting tuber-

culosis are practically innumerable. After an injury one may develop the disease. Over and over again injured joints have turned out to contain tuberculous matter. The human body is not a solid formation. When we examine it with a microscope we will find it is full of little lymphatic spaces, which communicate with larger ones, with the ear, the ankle-joint, the hip-joint, the peritoneal cavity, the pericardium, and there we find these spaces communicating with larger cavities, and where those spaces appear a hundred bacilli could march abreast; there they find the proper culture at the proper temperature.

No one disease, I insist, is more potent than tuberculosis. No greater subject comes before this convention, and I earnestly hope that we shall combine all the different Sections of the AMERICAN MEDICAL ASSOCIATION and make one great Section that will deal with tuberculosis from every point of view, and impress on this government with all our combined efforts the importance of caring for this question in some way, because the welfare and prosperity of any nation must depend on the health of that nation, and its health depends on that of its individuals. No one disease in the United States carries off more people than tuberculosis. You can not count the number, on account of the difficulty of diagnosis. Here is your meningitis! You do not know the origin of that. It is tubercular meningitis. And how about tubercular pericarditis? Are you familiar with the tuberculosis of typhoid fever, with tubercular peritonitis, and with the majority of joint diseases?

Yet we are allowed to come in contact with this terrible disease every day, through the communion cup, the common drinking fountain, the common drinking cup on the trains. These are just the facilities for the spread of it, and just as it involves all the nations of the earth, so too it involves every single organ and tissue of the body; and so too it pays no respect to persons or to sex, while health can not stay its progress. It sits upon its throne swinging its fatal scepter, proud king of mortality, and all persons, all classes, and all conditions must bow before it.

DR. E. FLETCHER INGALS, Chicago—The remarks of the last speaker on this subject emphasize the great prevalence of tuberculosis. Surgeons tell us that 80 per cent. of the human family have tuberculosis in one form or another, and it is probable the percentage is even larger than this, for many recover who do not consult a physician or surgeon. This being so, it is more than likely that every one of us has tuberculosis. The reader of the second paper cited the well-known fact that in from two-fifths to three-fifths of all dead bodies, where there had been no evidence of tuberculosis before death, tubercle bacilli may be found in some of the organs. Possibly if all the organs in these bodies had been examined bacilli would have been found in them. The first paper brings us face to face with the fact that we have to deal with much more than indicated in the more optimistic papers.

Are we going to prevent tuberculosis by isolating or colonizing patients? Are we going to prevent it by the various bactericides? Are we in a position to stamp out tuberculosis? The experience of the reader of the first paper would seem to indicate that we are not. The isolation of patients, the free use of antiseptics, and greater care will have some effect now and then in checking the disease, but the tubercle bacilli are so universally diffused that we can not reasonably entertain these optimistic views about stamping out the disease, and I too believe that it is not by destruction of the tubercle bacilli that we are going to accomplish much, for the army is too great. We can not overcome it, but must direct our efforts to keeping the people as well as possible, and to building up the vital resistance. If 80 per cent. of the human family have tuberculosis, and only a small per cent. of these die with the disease, surely the vital resistance has a great deal to do with the recovery of the remainder.

One question arises which I hope the profession will carefully study, viz: Where does this bacillus come from? It is not at all probable that it is a new organism, or that it is attacking the human family now for the first time, or that it made the initial attack at any time within the recollection of historians. On the contrary, it is more than likely that tubercle bacilli were numerous long before history was written. Are we to suppose that tubercle bacilli originated in the dim past with some one individual, and were from him transmitted to others, and finally scattered broadcast until they became diffused throughout the world? The bacilli being vegetable instead of animal bacteria, therefore the question arises: Is it not possible that they were originally, and are still, developed from some of the plant life about us? It does not seem to me reasonable that they have at all times developed in animals of some kind. Möller, whose standing and skill as a bacteriologist are beyond question, claims to have found tubercle bacilli in great numbers on certain grasses. If this is true, does it not seem natural that cattle should get tuberculosis from feeding on the grass? If bacilli, like the pollen of certain flowers, may be carried many miles by the winds, is it surprising that they should spread all over the earth, excepting in deserts and other regions where these grasses can not grow? Let all reasonable measures that are effective for the spread of this disease, by the communication of germs from one patient to another, be adopted, but do not let us deceive ourselves into thinking that when we have done this we have the battle won, and that tuberculosis will speedily be stamped out.

DR. WALTER WYMAN, Washington, D. C.—I wish to briefly mention the work of the United States Marine-Hospital Service in trying to determine how far this disease is transmitted through the medium of the railway coach. We have had, under the direction of the director of the laboratory, Dr. Kinyoun, a large number of experiments conducted during the last two or three years, but not yet completed. The first thing we started on was to find just how dangerous the Pullman coach is in disseminating tuberculosis, and then to find a way of thoroughly disinfecting the coach. The two investigations have been going on simultaneously. We have not yet prepared a report on the amount of infection, but in a general way the infection is much less than is generally supposed. At the same time it is necessary to disinfect these coaches, not only for tuberculosis, but for many other diseases. The director of the laboratory, two or three years ago, conducted a series of experiments with formaldehyde gas for the purpose of finding a method of disinfecting the coach without ruining it. Very complete experiments were made as to its effect on the various fabrics used. The Pullman Company sent us specimens of every kind of fabric that they use, and these were subjected to the action of this gas. It was found that there is no deleterious effect whatever, so we have really finished that part of our work, and we have published a report on the proper way to disinfect the railway coach, and hope to publish, later, the result of the experiments with regard to the amount of infection or danger of infection in the Pullman coaches.

DR. W. A. EVANS, Chicago—When I came to this meeting of the AMERICAN MEDICAL ASSOCIATION, I did not expect to discuss this question, and this is my apology for some lack of accuracy in references and in figures, for the difficulty in quoting the latter exactly will be apparent to you.

I wish to argue on four propositions: 1. Tuberculosis is the most widespread of all diseases. 2. It is the most costly of all diseases. 3. It is the most important economic problem that confronts the American people. 4. Tuberculosis is, relatively, gaining in frequency.

As to the first proposition, according to Hirsch, the number of people in the entire world dying each year is 35,000,000. Of this number 5,000,000 die of tuberculosis. It is held, that in the United States, each year, 150,000 die from this disease, according to the census of 1890, 102,000 during that year. It is safe to say that in statistics of this character there is a large ratio of error. Any statistics bearing on any question that involves the expectancy of life, that affects the marriage relation, or that increases the premium on life insurance must always be subject to a very considerable percentage of error. I take it that you will agree with me that 10 per cent., as a range of error on the subject of tuberculosis, would easily be within the bounds of safety. In all France, according to statistics, there die each year from 150,000 to 200,000 people with this disease. In Germany, according to Legden, each year 170,000 die from it. According to Tatham's statistics for England, 241 out of each 100,000 inhabitants die from tuberculosis annually. For Vienna, the statistics are as follows: out of each 100,000 inhabitants 450 die each year from this

disease. In Budapest the statistics are 646 for each 100,000. In Philadelphia the average death-rate from tuberculosis is approximately 2800, or 11.8 per cent. of the total death-rate. In New York City, according to Biggs and Prudden, there are, it is safe to say, 20,000 people walking the streets each day affected by tuberculosis and carrying the possibility of infection to the other people of that city.

In Chicago, from 1851 to 1896, 39,000 people died from this disease. This constituted one-tenth of the total mortality. In the last six months, according to the Bulletin of the Health Department, there has been one death from tuberculosis to 8.4 deaths from all other causes. During the last six months 1552 people died in Chicago from tuberculosis, this being at the rate of 31.4 for the twelve months. In France, Germany, Austria, Italy, approximately one out of every five of the total deaths is due to tuberculosis. The figures that are given for the world at large, and the figures that are perhaps more nearly accurate for America, especially for the United States, are one in seven. According to Vaughan, out of the people of America one in sixty at any given date are affected by tuberculosis. According to the conclusion arrived at by the Worms commission in Germany, at any given date, one person out of every fifty of the entire population, of all ages and conditions, was affected with tuberculosis.

On the basis of one out of every sixty, which is perhaps a better figure, and a more accurate basis for America, there are to-day in the limits of the United States 11,100,000 people who are due to die from tuberculosis, who are to-day and every day moving among their fellow men, sources of contagion and infection to everyone, not only those with whom they are directly or immediately in contact, but to those with whom they come even in remote contact. In Chicago, according to these estimates, there are each day 30,000 people walking the streets, acting as points of infection for the other inhabitants.

Let us for a moment compare the statistics of tuberculosis with some of those on other diseases that engage the attention of the public. We know the commotion that is widespread whenever contagion threatens American shores. We know that if a telegram tells us that a case of Asiatic cholera has left the Far East, bound for America, instantly the wheels of commerce are paralyzed in order that America may be sheltered from this dread disease. We know that when the cable informs us that yellow fever has left the countries of the Gulf for the States, a panic of fright seizes at least one-half of this United States, and then for many months all endeavor, all effort, all striving in that region is at rest. Yet we have right among us, always, a disease in comparison with which the diseases that I have mentioned are puny and inconsiderable.

According to German statistics, tuberculosis kills thirty times more people than smallpox and scarlet fever combined. It kills sixteen times more than typhoid fever; it kills eight times more than diphtheria, and four and one-half times as many as all of these diseases combined.

According to the statistics of Laveran, in France, from the year 1832 to the year 1854, cholera killed 57,335; tuberculosis killed the same number of people in one-third of a year. According to the statistics of Celli, in Italy, from 1865 to 1893, cholera killed 214,551 people; tuberculosis in the same space of time killed 2,000,000. The Bulletin of the Health Department of Chicago demonstrates that tuberculosis kills nearly four times as many people in Chicago as does diphtheria, that it kills nearly seven times as many as does scarlet fever; that it kills 1 2/3 times as many as does diphtheria, smallpox, scarlet fever, typhoid fever, measles and meningitis combined.

Not only is the question of great importance as regards mankind directly, not only is it most widespread in the human subject, but it is spread perhaps usually widely throughout the animal kingdom. The statistics of Germany show that 6.9 per cent. of the cows of Germany are affected with tuberculosis; that 3.6 per cent. of the oxen have this disease, 2.6 per cent. of the bulls and 1/10 of the calves. The importance of this you will understand. It is seldom that we take our meats uncooked, therefore we do not care very much as to any of these animals except the cow. Milk is the one large food element that is eaten uncooked, and by reason of this the fact that 6.9 per cent. of cows are affected with tuberculosis becomes a matter of exceedingly grave moment. The German government report for 1889 said that 2 per cent. of all the stock was affected by tuberculosis. The investigation made by the United States Veterinary Association, in 1889, showed that of the cows of the Eastern States, especially those contiguous to the large cities, from 10 to 15 per cent. had tuberculosis. Statistics of France show that 1 per cent. of the stock of France have tuberculosis; in Belgium, 4 per cent.; in Holland, 2 per cent. Beng of Copenhagen claims that from 15 to 16 per cent. of the stock of that country have tuberculosis. Statistics show that 10 per cent. of the imported cattle of the Argentine Republic die of tuberculosis. In Berlin, in the years 1892 and 1893, 15.1 per cent. of the slaughtered animals were demonstrated to have tuberculosis.

I have in my possession replies from the agricultural stations of ten of the states of the Union. Letters were sent to many and ten have replied. Professor Russell of Wisconsin stated that of the stock that had been examined in his state, 10 per cent. had tuberculosis. He said that a large percentage of this stock had been examined because tuberculosis was suspected. He stated further, however, that they had examined some cows in which no tuberculosis was suspected. In spite of these facts, 10 per cent. is probably higher than the actual percentage of that state. My reply from Colorado was that in cows in dairies close to the city there was 3 per cent. of tuberculosis; in cows on the range there was practically none. The reply from Vermont was perhaps more valuable than any other. It said that one-fifth of the cattle of Vermont had been treated with tuberculin, and these observations showed that 2 to 3 per cent. of the cattle of that state had tuberculosis. My reply from Pennsylvania was to the effect that the probable amount of tuberculosis in cattle in that state was from 2 to 3 per cent.

My second proposition is that tuberculosis is the most costly of all diseases. You can understand the difficulty of arriving at statistics along this line. It has been estimated by Knopf that the cost of a tubercular charity patient in the city of New York is $522. The figure $522 might be high for the charity patients throughout America, but it is a low one for the average patient, both charity and pay, throughout the American continent. At this figure the cost of tuberculosis each year in America is $574,000,000. If we figure on the basis of those who die of tuberculosis, and count the cost at the legal compensation for the life of an individual, we find that the cost of tuberculosis to the American people each year is $750,000,000.

Kohler tells us that of the people who die between the ages of 15 and 60, one-third die from tuberculosis. Let us understand the force of this proposition; until the child becomes 15 he is dependent on the effort of his parents, and after a person has passed 60 years of age he again becomes a dependent, as a general proposition. He is dependent either on the state, on his family, or on the accumulation of his years of greater activity. Thus do we divide mankind into two great classes, the class of dependents and the class that bears the burden of the world, and therefore, the class on whom everything that this world accomplished depends. Of those who die in these years of greater activity, in these years of greatest usefulness, one-third die from tuberculosis. According to statistics 50 per cent. of the people who die of this disease die between the years of 20 and 35. According to German statistics, the source of which I have not at hand, 75.8 of the people who die from tuberculosis die between 20 and 60 years of age. I trust that you will see the full force of the statistics that I have just quoted to you. It means that during the years when a man should be caring for a family, that during the years when a mother should be rearing her children, he or she is a dependent for an average of fifteen months. When we know that 75 per cent. of tuberculosis subjects come from the working class, and that 25 per cent. only are from the non-working classes, we then remember that one-third of the providers are carried off with tuberculosis, and we see that into the marts of trade, into the field of labor, into competition with people who are depending on their endeavor for bread are thus ruthlessly thrown people who must provide, at any wage, not only for the families that should not depend on them, but for the invalid who should be providing.

I call your attention to another feature: A man has small-

pox. The course is run in two or three weeks. He is then dependent for a short time only. A man has tuberculosis. For from one to three years, averaging fifteen months, that man is a care on his family. Not only is he taken out of the list of wage earners but is put into the list of dependents.

As to my third proposition, that tuberculosis is the most important economic problem that confronts the American people, I must confess that I have not the abundant statistics at hand that I would like and could offer under somewhat different circumstances. I wish to call attention to the fact that tuberculosis kills 152,000 people in the United States each year. In the late war there were killed in all directions and in every way, 6300 people. I wish to call your attention again to the fact that this disease costs the United States, easily, $574,000,000 each year. The war loan for the prosecution of the last war was $150,000,000.

The last proposition is that tuberculosis is gaining relatively in frequency. I do not mean that there is as much tuberculosis now as there was some time ago. It seems to be established that in England the percentage has increased, and to be well established that in certain places the amount of tuberculosis is less than it has been. But that does not alter the fact that the proportion between the tubercular and the general death-rate is increasing. This is as true of England as it is of Chicago, and of the balance of the United States. There are some reasons for this. In the first place tuberculosis is a disease that increases in frequency and importance as men are gathered together in masses, and the Americans are becoming a people of cities. This would indicate that the amount of tuberculosis is increasing. Whatever other considerations there may be, this fact you can keep clearly in mind, that every germ that is parasitic to man finds in man a place in which it can grow and propagate to good advantage.

It doesn't matter particularly what we think as to whether the bacillus is spread alone by moist excretions, or whether it can be spread as a dry powder. Each of the contestants on these points has shown very good reasons for his opinion. As Cornet has had the last say, his views appear the most clearly proven, but for our purpose it matters little what side of the controversy we take. We know that there are few organisms that are so little tenacious of life outside of the body as the bacillus of tuberculosis. The importance of this we can understand when we know that two or three billion bacilli are expelled from each tubercular patient in twenty-four hours. The very fact that we are alive must be a demonstration that the tubercle bacillus can not be an organism that is tenacious of life outside the body. That which does concern us is that every susceptible human being may be a culture-tube for the bacillus, wherein it can grow, propagate and spread.

European statistics demonstrate the fact that tuberculosis is more abundant there than it is here. Our death-rate from tuberculosis is perhaps one in seven; their death-rate in this is one in five. They are gathered together more closely than we. Again, the Indian on the western frontier is comparatively free from tuberculosis. The disease increases, however, as the Indian approaches civilization, and the death-rate in those scattered reservations that are left in the East is something enormous.

The statistics of Chicago show that tuberculosis from 1891 to 1896 made up, approximately, 10 per cent. of the total mortality; the statistics for 1898 to 1899 show that of the total mortality tuberculosis made up 11.9. Understand that on the basis of each 100,000 inhabitants the percentage has fallen materially, but it has not fallen in comparison with the other diseases that are killing mankind. In the same period of time diphtheria has fallen 46 per cent. Typhoid fever in 1891 and 1892 furnished 6.4 per cent. of the total mortality. Typhoid fever in 1893, '94, '95, '96 and '98 furnished approximately 2.4 of the total mortality, a fall of more than 50 per cent. The statistics from Philadelphia show that while there has been a marked decrease in the percentage of tuberculosis for each 100,000 inhabitants, there had been no material decrease as compared with the death-rate from all diseases.

I have purposely refrained from entering into any discussion of the question as to how we are to combat this most terrible of all diseases. That is not the need now. The great need is to awaken the people. I differ from the speaker who says that the future holds nothing of hope. It holds everything of hope (applause). The statistics of Beng demonstrate that the policy of separation of tubercular cattle in Copenhagen has reduced the percentage amongst those herds to one-seventh of the original figure. He will, within a few years, by no policy of killing, but by simple seclusion, completely wipe out tuberculosis from the cattle that he had under his supervision. The future is pregnant with hope. We will stifle tuberculosis. I will live to see the day, and many of you far older than I will live to see tuberculosis become of secondary importance.

DR. H. M. BRACKEN, St. Paul, Minn.—The figures that have been presented are appalling. We all appreciate the importance of doing what we can to eliminate or eradicate this disease. The question naturally arises: What are we going to do? It is known to some of you, probably, that much has already been done, not only by individuals who are interested in this work, but by various associations, and it is simply a reference to such work that I wish to make. Two years ago, tuberculosis was under discussion at the Conference of the State Board of Health. There was a resolution presented urging the state officials to bring about, so far as possible, the isolation of tuberculous patients in state institutions. The various state officials, I presume, followed this matter up on their return home.

It was not necessary to go to Mexico to find a state penitentiary where isolation has been carried out. In 1897, on inquiring as to what the various state institutions in Minnesota were doing, I found that the physician at the state prison at Stillwater had for several years isolated the tuberculous prisoners. The disease had been reduced to a minimum by this action. The diet of these prisoners was entirely different from that of the others, their mode of life was different; they were kept in separate cells, their cells and their bedding were carefully cared for, and on the death of one his cell was thoroughly disinfected. The isolation was so apparent that this particular row of cells was known as the "tuberculous row." It pleased me to find that such action had been taken at this prison.

There is another thing that I wish to refer to. It has been mentioned that the Hebrew is exempt, to quite an extent, from tuberculosis; as an explanation for this fact the manner in which he selected his meats has been cited. It is well known that meat is not a very marked source of infection, for the reason that it is usually thoroughly cooked before being used as food. You must find some other reason for the exemption of the Jews from tuberculosis than their methods of inspecting meat. I know it to be a fact that Hebrew butchers will go into the market and buy cattle that are known to be tubercular, for the sake of getting them cheap.

DR. WM. H. DALY, Pittsburg, Pa.—Serious inaccuracies often creep into statistics. It is not in accordance with my observations that the Jews are more immune to tuberculosis than other people, and I do not think, even if granted they are immune, that it is due to their manner of inspection of cattle. The inspection of cattle by the Jews is done more to prevent the consumption of cattle that have had pleurisy, as evidenced by the presence of pleuritic adhesions. So far as I know, they make no microscopic investigation as to tuberculosis in meats.

The great prevalence of tubercle bacilli makes us wonder that it is not more infectious than it really is. I find that when I am attending to my private practice, which is largely in diseases of the chest and throat, and while working in the consumptive wards of the Western Pennsylvania Hospital, Pittsburg, any day while I am at work I can find the tubercle bacilli on my pharyngeal mucous membrane. I do not want to detract for one moment, or by one word, from the great importance of our giving attention to the prevention of contagion, and I am well aware that in the discussion of tuberculosis more time is given as to how prevalent it is and as to how infectious it is than to the taking care of and curing the cases we have to deal with. The former is too evident, the latter too insufficient. Such work as General Wyman is engaged in is worthy our best attention and skill by looking farther, if possible, into the cure and regulation of tuberculosis. But in its regulation in such cases as this penitentiary spoken of, where they have cells four feet wide, etc., needs no comment; the facts are sufficiently opprobrious. I would rather take one page of experience and careful observation, honestly reported,

than whole tomes of theory or statistics, especially if they are not gotten up by painstaking and accurate people. I am not questioning any statistics for their honesty, but I would feel it proper to question statistics for their accuracy.

In my observations of over thirty years in Pittsburg, in active practice, I have not observed that consumption is more prevalent among the working classes pure and simple than any other class. But you take that portion of the working classes who are vicious, a subclass who only work occasionally, then I admit that if you include only that vicious class among working people, it is very prevalent, indeed, but the physical vigor, pure blood and wholesome constitutions are seen at their highest type in the working classes after the vicious element or subclass is eliminated. It is a serious question and, as far as I am personally concerned, I feel at a loss as to what is best to be done. I have lost confidence in sending advanced patients away for a cure, especially to sanitaria where consumptives congregate, and if my advanced patients have proper surroundings at home, I do not send them away. I know of hundreds who have gone to such places only to die, but if they can go to a properly selected climate early, and live in their own establishment, if that may be only a tent, and have some occupation and proper food, and I wish to emphasize the latter, then it is well. But in advanced cases a modest, clean home with the family is quite as advantageous to the patient as a poor room and poor food in a strange land. The end is the same in either case, but the home treatment is more merciful to the advanced one.

DR. T. M. MCINTOSH, Thomasville, Ga.—As I live where consumptives, in all stages of the disease, come, I wish to say that I think physicians do wrong in sending patients with advanced phthisis from home at all, unless they be people of wealth who can obtain all comforts anywhere. I have often been pained at the personal and financial discomfort that surrounds these poor unfortunates, slowly dying, away from home and friends, with the vain hope of climatic cure. In reference to the spread and prevention of consumption, the best and most practicable means to this end is a matter of personal hygiene—fresh air, sunshine, sleeping, eating, clothing, exercise.

My observations do not lead me to believe as strongly in the contagiousness of consumption as is now done by the majority of the profession. The high death-rate in prisons and penitentiaries from consumption, as well as from other diseases not referred to, is due to the confinement and resulting bad effects on the general health. The penitentiary system of Georgia, of hiring out the convicts, which puts them in different parts of the state—mining, farming, saw-mills—is the best in the world, for the death-rate from disease will compare favorably with that among any other class or condition, being 13½ per 1000. It is highly proper and desirable to establish sanatoria, and set apart large tracts of lands for consumptives, for this will give them pure, fresh air, and the conditions conducive to the most perfect physical existence, but that these means, and the isolation of consumptives will eradicate the disease can but fall far short of realization. The public must be taught more clearly the methods and importance of personal hygiene, and of perfect physical condition, as the safeguard against consumption, and not lay too much stress on the idea of contagion. As to what climate is most suitable for consumptives, broadly speaking and not considering the individual case, that climate is best where one can have the purest air, the most sunshine, be most out of doors, and have the most agreeable surroundings, physical, mental and financial.

DR. B. STANTON, Cincinnati, Ohio—I was a little surprised at the statement made by Dr. Evans in regard to the death-rate from tuberculosis. As I understand it, there has been no relative decrease in this death-rate in the last ten years. In an investigation on this subject, which I made last winter, in regard to the cities of Ohio, I found that the last ten years did show a proportional decrease. I am not able now to give the figures, but every Ohio city which published reports in the last ten years, and that had published reports for the ten years preceding, showed a reduction in the proportion of the death-rate from tuberculosis. I was under the impression that the same condition would be found in nearly all the cities. I did not attribute it to any medical treatment for these cases, or any improvement in the medical care, but I believe that it is attributable to the decrease in the disease because of better sanitation, from the work that is being done by such sections as we have here to-day.

DR. W. J. FAIRFIELD, Anderson, Ind.—The germs of this disease haunt all civilization, and sanitarians are everywhere striving to formulate methods for stamping them out, but the tubercle bacilli, like the poor, we will always have with us.

I believe it is a perfectly acceptable proposition to every one in this hall, that the best preventive of consumption is good health. And while it is all right to practice the rules of the various health boards, as they are in the right direction, yet, if our municipalities and states would offer a premium on good health, and set to work systematically to lay out lines which the people could follow to bring them up to a high physical condition, we would have the question practically settled. How many of us are following the lines of hygiene, the science of life, regarding food and habits, best adapted to keep and support the body in the best possible way to attain a high grade of cell vitality, on which the immunity depends.

With a good degree of vital resistance, and no derangement of mucosa, teeth, mouth, throat, and stomach, all with normal integrity, the great open gate to consumption is practically closed; but with bad teeth, dental caries, ulcerated gums, cracked and fissured tongue, catarrhal tonsils, nose and throat, and most of all, a defective stomach, a favorable opportunity and soil are furnished for the introduction, planting and growth of the tubercle bacilli.

Our bodies are the most wonderful and admirable of all things, in which we have the highest expression of unknowable intelligence. And the greatest work of the physician is to have the body so related to all the conditions of life to secure the best man, physically, mentally, and morally. Secure this high attainment and the home will realize the promise of the Psalmist: "Neither shall any plague come nigh thy dwelling, and with long life will I satisfy thee."

DR. WALTER WYMAN, Washington, D. C.—I have very little to say in closing except that I believe that there is a climatic cure for most cases. The same climate is not always beneficial in every stage of a given case, nor to all cases, but by careful selection and trial a climate can be found that will benefit nearly every one. The medical profession will probably look with great interest for the results of our experiments at the Marine-Hospital Sanitary Ranch, at Fort Stanton. We propose there to carry on a very careful course of experiments, keeping very accurate records and testing the latest discoveries that are brought to our attention, and if these experiments prove that the sanitarium there, and the way it is conducted, is of great value to this class of patients, it seems to me that it will lead to the establishment of like sanitariums in the same region by each individual state. I believe that some day this sanitarium will prove to be of very great value to the country at large and to the different states.

DR. H. M. THOMAS, Chicago—The central point in this symposium was pertinently expressed by Dr. N. S. Davis. It is clinically established that it is simply a question of vital resistance. My own experience would tend to demonstrate that. In the course of my clinical work in tuberculosis I have had three physicians associated with me, all working under the same conditions, and all of whom succumbed to tuberculosis of the lungs, while I, working under essentially the same environments, escaped. That illustrates, in my own experience, the observation of Dr. Davis as to the varying vital resistance of individuals.

In regard to the scepticism of Dr. Ingals that we are too forward in our hope that the tubercular germ can be exterminated, I feel that we can not place too much emphasis on the fact that we *can* control tuberculosis. The germs may have antedated the earlier civilization with which we are familiar, but our knowledge of them is so extensive, now, and our means of controlling them so great that I feel that with the intelligent co-operation of the vast number of highly-educated physicians in this country, and the people as well, it is not a Utopian dream to say that tuberculosis will be prevented and controlled, and that not at a far distant date. Our immunity from tuberculosis rests on four fundamental principles: the necessity of every individual having an abundance of pure air, pure water, pure food, and judicious exercise.

DR. N. S. DAVIS, Chicago, in closing—I do not wish to trespass on the time of the Section longer. In my paper I freely admitted the importance of all reasonable means for destroying the tubercle bacillus or preventing its diffusion, but I also endeavored to emphasize the importance of removing all those causes that diminish man's vital resistance to the invasion of tuberculosis and all other infectious diseases. And as nothing has been said militating against the correctness of this view, I will not consume your time by presenting further illustrations.

DR. W. A. EVANS, Chicago.—I would like to offer the following motion: *Resolved*, That, whereas it is the sense of the Section on State Medicine that tuberculosis should be systematically investigated, and that an effort should be made to awaken public intelligence and public conscience on this subject; therefore, we instruct the President of this Section to appoint a committee on tuberculosis, said committee to proceed along such lines as their judgment may direct.

The motion was carried.

THE FREQUENCY OF RICKETS IN INFANCY IN BOSTON AND VICINITY.*

BY JOHN LOVETT MORSE, A.M., M.D.

Consulting Physician at the Massachusetts Charitable Eye and Ear Infirmary; Assistant Physician at the City Hospital, and Physician to Out-Patients at the Infants' Hospital; Assistant in Clinical Medicine, Harvard Medical School.

BOSTON.

My attention was directed to this subject by the apparent frequency with which a rosary was met with in the routine examination of infants. There seemed to be but two explanations for this frequency—either rickets was much more common in infancy in this vicinity than was commonly supposed, or else a rosary was normal and not an evidence of this disease.

In order, if possible, to answer these questions, 400 infants under 2 years of age were examined in the medical out-patient department of the Infants' Hospital, during June and July, 1898, for evidences of rickets. The majority of these children came from the more densely populated districts of Boston, Cambridge and Somerville; the rest from other parts of these cities and from the neighboring towns. The hygienic conditions of their homes were probably often of the worst, usually bad and rarely good. These 400 cases were consecutive, none being omitted for any reason. The cause of their attendance at the hospital was not, except in a few instances, rickets, but a great variety of diseases, mainly gastro-enteric in origin.

In this investigation evidences of rickets were sought for mainly in the bones. It was recognized, of course, that as the result of the impaired nutrition in rickets changes occur in all the tissues. It was deemed impossible, however, to detect these changes, or at any rate to be able to attribute them with certainty to rickets, except in the case of the bones. Here only could the changes be considered at all characteristic.

The following changes in the osseous skeleton were considered as evidences of rickets and were sought for in every case:

1. Increase in size of the frontal and parietal eminences.

2. Failure of the anterior fontanelle to diminish in size as rapidly as normal or to close at the usual time. The normal time of closure was placed at eighteen months; late, if anything.

3. Open sutures and craniotabes.

4. Delayed eruption of teeth. It was considered that an infant should have 1 tooth at 8 months, 2 teeth at 9, 6 at 12 months, 12 at 18 months, and 16 at 2 years. These figures are all rather later than the average.

5. Rosary. In order to avoid error only those enlargements were considered as a rosary which could be felt both parallel and vertical to the long axis of the rib. Three grades were distinguished; slight, medium and marked.

6. Other deformities of the chest: *a.* Protrusion of sternum. *b.* Retraction of sternum. *c.* Retraction at the insertion of the diaphragm and flaring of the lower chest.

7. Enlargement of the epiphyses at the wrists and ankles.

8. Deformities of the long bones of the extremities: *a.* Bow-legs. *b.* Knock-knees. *c.* Bowing of the arms.

Three other points were also studied as being important and common manifestations of rickets, although not diagnostic, as are the skeletal changes. These were: 1. Weakness of the spine. It was considered abnormal if the infant was not able to hold up its head alone at 3 months, and sit alone at 8. Marked general kyphosis—the curve of weakness—was also considered abnormal even if the infant could sit alone.

2. Marked enlargement of the abdomen.

3. Splenic enlargement. The spleen was considered enlarged only when it could be felt.

Only 82 of the 400 cases, or 20.5 per cent., showed none of the above signs of rickets. This number, moreover, is really larger than it should be, as it includes many babies only a few days or weeks old. At this age perceptible osseous changes have hardly had time to develop. Unfortunately no accurate data were kept with regard to the diet and surroundings of these cases. My impression is, however, that the great majority of them were breast-fed, and that they had no better surroundings than the others.

The fact that 20 per cent. of these 400 infants had no rosary shows conclusively that a rosary is not a normal occurrence in infancy, but an evidence of disease. Corroborative evidence in this connection is the fact that a considerable number of infants examined in private practice, who were properly fed and lived in the best hygienic surroundings, failed to show a rosary. Further proof that a rosary, palpable during life, is abnormal, is furnished by the fact that slight beadings, imperceptible during life, are often found post-mortem and microscopically show marked rachitic changes.

Three hundred and eighteen, or 79.5 per cent. of the 400 cases showed more or less marked evidence of rickets. That is, if these 400 may be considered representative, and there seems no reason why they should not be, 80 per cent. of the poorer classes of Boston, Cambridge and Somerville suffer from rickets. This percentage is larger than *a priori* would have seemed possible. The explanation probably is that a large proportion of the cases were mild and would not ordinarily have been recognized as rickets unless a careful examination had been made. It is probable too, I think, that rickets is absolutely on the increase.

The ages, by months, of these 318 cases were as follows:

1 month	4	10 months	23
2 months	13	11 months	16
3 months	25	12 months	21
4 months	20	13 months	14
5 months	20	14 months	11
6 months	24	15 months	10
7 months	22	16 months	10
8 months	24	17 months	1
9 months	28	18 months	9

*Presented to the Section on Diseases of Children, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

19 months	1	22 months	2
20 months	10	23 months	4
21 months	6		

These figures are of little value as showing the relative frequency of rickets at various ages, because they show only the relative proportions in the 318 cases, and not the proportion of cases of rickets to the total number of children living at these ages. They do not show, for example, that rickets is more common in the first year than in the second, but only that more babies under 1 year were brought to the hospital than from 1 to 2. They do, however, emphasize the fact that rickets is very common in the first year, and that well-marked bony changes may be produced, even in the first month of life.

The analysis of the individual symptoms in the 318 cases, under the conditions detailed above, gives the following results:

1. Enlarged eminences: frontal alone, 7; parietal alone, 35; frontal and parietal, 18; that is, 60, or 19 per cent. The youngest of these patients was 4 months old, but only 12 were under 9 months. The shape of the head was hydrocephalic in type in 2, and asymmetry of the head and flattening of the back of the head were each noted in 1 case.

2. The anterior fontanelle was larger than normal in 49 cases, or 15 per cent. The youngest of these was 5 months old. The posterior fontanelle was open in 5, varying in age from 5 to 10 months. The anterior fontanelle was prematurely closed in 4, whose age ranged from 7 to 11 months.

3. The sutures were open in 1 patient, and craniotabes was present in 1 other.

4. Dentition was delayed in 98 of the 190 infants 8 months or more old, i. e., 52 per cent.

5. Rosary: This was slight in 172, or 54 per cent., the only symptom in 103, with one other in 40. It was medium in 103, or 33 per cent., the only symptom in 24, with one other in 23. It was marked in 43, or 13 per cent., the only symptom in 4, with one other in 3. Of these 318, it was therefore the only symptom in 131, or 41 per cent., with one other in 66, or 21 per cent.

ROSARY AND ONE OTHER SYMPTOM.

Rosary.	Slight.	Medium.	Marked.	Total.
Delayed Dentition	17	7	1	25=38 per cent.
Large Eminences	8	3	1	12=18 per cent.
Large Fontanelle	5	2		7
Large Epiphyses (Wrists)	3	3	1	7
Large Abdomen	3	3		6
Weak Spine	2	3		5
Splenic Tumor	2	1		3
Retraction at Diaphragm		1		1
	40	23	3	66

That is, a rosary was present in every case. It was the only sign in 41 per cent., and was associated with but one other sign in 21 per cent. Slight degrees of beading were much more common than the more marked and, as would be expected, were more often the only sign than were the severe forms. Delayed dentition was the most common single associated symptom, and enlargement of the cranial eminences the next. This relation corresponds to that given by them when considered as single symptoms.

6. Other deformities of the chest were: protrusion of sternum, 1; retraction of sternum, 2; retraction at diaphragm and flaring of lower chest, 43, or 14 per cent. But 4 of these were under 9 months old.

7. Enlargement of epiphyses occurred: wrists alone, in 48; ankles alone, in none; wrists and ankles, in 2, a total of 50, or 16 per cent. The youngest of these was 5 months old. Only 8 were under 9 months. The great preponderance of enlargement at the wrists is striking.

8. Deformity of the long bones of the extremities was noted as follows: bow-legs, 16; knock-knees, 1; both, 1; bowing of arms, 2; a total of 20, or 6 per cent. The age of these was rather evenly distributed among the months between 5 and 23. The very small number presenting deformities of the lower extremities is probably to be explained by the fact that the great majority of the children were under 1 year old, before which time little or no weight is borne on the legs.

Weakness of the spine was noted in 42, or 13 per cent.; 13 of these were under 9 months old.

Marked enlargement of the abdomen was present in 47, or 15 per cent.; 15 were under 9 months, 4 of them being only 3 months old.

Splenic tumor was detected in 24, or 8 per cent.; 9 of these were under 9 months, and one was but 2 months old.

Too much importance must not be attached to these last three signs, as they are not all characteristic of rickets and may occur as the result of many and varied conditions. In these cases they may as well have been symptoms due to the same cause which produced the rickets, or to complications, as to the rickets.

A summary of these figures shows that a rosary is the most common symptom of rickets, in fact that it is an invariable symptom. It may be developed very early, even in the first month of life. It is the only symptom in about 40 per cent. of the patients under 2 years old. When it is the only symptom it is more likely to be small or medium-sized than large. It is accompanied by but one other symptom in 20 per cent. of the patients. This associated symptom is most frequently delayed dentition; next, enlarged cranial eminences. The next most common symptom is delayed dentition, which occurs in more than 50 per cent. of all cases. Enlarged cranial eminences are present in about 20 per cent. Abnormal size of the anterior fontanelle, retraction of the chest at the insertion of the diaphragm, with flaring of the lower ribs, and enlargement of the epiphyses each occur in about 15 per cent. Although these deformities are occasionally found in infants as young as 4 months, but few of them are met with under 9 months; that is, compared with the rosary, they are symptoms of somewhat late development. This is more evident when we consider that the majority of the patients were not over 9 months old. Enlargement of the parietal eminences is much more common than that of the frontal. Craniotabes is very unusual. Other deformities of the chest, besides retraction at the insertion of the diaphragm and flaring of the lower ribs, are rare. Enlargement of the epiphyses at the wrists is common; of those at the ankles, rare. Deformities of the long bones of the extremities are uncommon under 1 year of age. Bow-legs is by far the most frequent form. Weakness of the spine and abdominal enlargement are met with in about 15 per cent. and splenic tumor in about 8 per cent. of the cases of rickets in patients under 2 years old. These symptoms, while probably due in many cases to the rickets, are certainly not in all.

The parentage of the 318 patients was as follows: Russian and Polish Jews, 122; Irish, 93; American, 32; English, Scotch and Canadian, 17; Negro, 15; Italian, 15; German, 11; French, 7; Swede, 2; Finn, 2; Portuguese and Syrian, each, 1. These figures must

not be taken, however, as denoting the relative frequency of rickets in the various races. They merely show the relative proportions of the races that attend the clinic and make up the poorer classes. They are of importance, nevertheless, in that they show that no race is exempt from the disease and that the cause must be sought elsewhere.

An attempt was made to determine what had been the diet of these infants. It was found impossible, however, to make anything out of that in those over 9 months old, as the children of the classes from which these came are almost invariably given everything to eat after that age. The diet of the 180 not over 9 months old was as follows: breast only, 31; breast and cows' milk, 20; breast and condensed milk, 11; breast and general diet, 12; breast and proprietary foods, 3 (=77); modified cows' milk, 17; cows' milk and water, 24; cows' milk and general diet, 7; condensed milk, 26; condensed milk and general diet, 2; various proprietary foods, 27.

The great variety of foods used in these cases and the large number of children which were fed on the breast alone—the ideal food—or on the breast in combination with other foods, seems to show rather clearly that the food can not have been the most important factor in their etiology.

Since race and diet are not sufficient to satisfactorily account for the origin of the rickets in these cases, some other influence, acting on them all, must have been at work. The only one common to all is improper hygienic surroundings. These, therefore, must be considered, in this vicinity at least, to be the most potent cause of rickets in infancy.

CONCLUSIONS.

The following conclusions seem to a certain extent justified: 80 per cent. of the children under 2 years old, of the poorer classes of Boston and the adjacent cities, have rickets. A rosary is not a normal phenomenon but is an evidence of rickets. It is a constant symptom of rickets. It is the earliest symptom to develop and in 40 per cent. of all cases in patients under 2 years old, is the only symptom. The next most common symptom is delayed dentition. Other symptoms, while they may show themselves at any age, do not, as a rule, develop earlier than the tenth month. The cause of rickets in Boston and vicinity is to be found in improper hygienic surroundings rather than in race or diet.

MENTAL FATIGUE.*

BY EDWARD THORNDIKE, PH.D.
CLEVELAND, OHIO.

The science of psychology has lately been coming into closer relationship with the science of medicine, and much may be expected from this connection. Psychology, the science of mental phenomena, ought surely to contribute something to medicine, which cares for the preservation and restoration of health to both body and mind. But up till recently the contributions were most frequently the other way around. The greater part of our knowledge of abnormal states of mind has been the gift of medical science to psychology. However, as the latter grows and solves some of her own peculiar problems, she will doubtless turn and try to help medicine, one of her nearest neighbors. As a sign perhaps, of such an attempt, I wish to present the results of a psychologic study of mental fatigue.

The word fatigue may mean either a fact or a feeling. By the fact of fatigue one means relative inability to do mental work—mental incompetency; while by the feeling of mental fatigue, one ordinarily refers vaguely to feelings which lead us to stop or avoid mental effort. In the fact of mental fatigue the student or medical practitioner may rightly be interested because of the part that it may play as a cause of, or a symptom of, nervous exhaustion, and because as a matter of mental hygiene, everybody doing mental work needs to know how to do it economically, to the best advantage, and when to stop. Each may rightly ask of the psychologist a clear, definite description of this thing, mental fatigue, an account of its causes and conditions. The feeling of mental fatigue is important because it is one of the common mental symptoms with which the physician has to deal. Even in normal ordinary life it is important in a high degree, because of its influence on conduct. Psychology should be required to more accurately describe the different mental conditions in people, which might be referred to by the words, "I feel mentally tired;" to discover to what degree these feelings are evidences of real mental inability, what connection there is between the feeling and the fact of mental fatigue, etc.

A common, if not a general, notion about the facts of mental ability and temporary inability or fatigue, is that the mind stores up during rest a sort of energy which it expends when it thinks. The mind is thought of as something like a storage-battery, or even like a barrel, which fills up with water as a consequence of nutrition and lets it run out when thinking goes on. A corollary of this view has usually been that as the mental energy was expended, the mind, by a sort of instinctive economy, spent it more and more slowly, that the rate of expenditure decreased as the amount to be expended diminished, that consequently the rate at which mental work could be done, the amount that could be done in, say ten minutes, decreased in proportion to the amount already done since the last rest. Something like this is Kraepelin's view. He says in his pamphlet ("Zur Hygiene der Arbeit"): " . . . the fact of fatigue is . . . an inseparable companion, nothing but the necessary consequence of work. So if we take the matter strictly, the fact of fatigue begins as soon as work begins"—*beginnt mit der Arbeit selbst.* The common view of the *feeling* of mental fatigue has been that it is a particular, unique feeeling, which parallels the *fact* of mental fatigue, and is directly caused by the latter.

During the last few months I have been studying the fact and the feeling of fatigue in myself and others. My conclusions differ decidedly from the common view stated, and also from the special views of some other investigators, particularly of Kraepelin, Griessbach, Henri and Vannod. I present them, accordingly, only as hypotheses which one may from his own experience correct or approve.

When we consider mental activity, we find that it follows the general biologic type of a reaction to a certain situation. A boy is asked: "How much is 13 multiplied by 17?" He reacts to this situation, viz., having the sense impression of the sound of that question—by remembering the way to multiply, by recalling the association formed in school between 7×3 and 21, by recalling 7 as the proper associate of 7×1, and 9 as the proper associate of $7+2$. So he gets 91, and similarly 13, and so on with the other associations necessary to complete the example. The value of the reaction depends on the accuracy of his associations; its speed depends on their readiness. Again, a person faces the situation of having to decide whether an animal, say a

*Presented to the Section on Physiology and Dietetics, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

whale, is a fish or a mammal. He reacts by thinking: "The essential features of a mammal are a four-chambered heart and cerebral hemispheres of a certain sort," by looking at the whale, and, finding them, and so deciding. He acts correctly here by picking out the essential features which make his comparison decisive. If he had thought only of the characteristic of aquatic life, he never could have decided. Having correct associations and picking out the essential features in a situation seem to be the chief phenomena of successful, rational mental activity. And the fact of fatigue, of relative inability to carry on such activity, would seem to be necessarily a fact resulting in inaccuracy, inappropriateness of associations, decreased speed of associations and aimlessness and slowness in the choice of the features in a situation which we shall take as essential. Now how such a simple change as decrease in mental energy can cause these very complicated changes seems a mystery, and almost an impossibility. Mere quantity of thinking is not mental ability. It must be *appropriate.* And a decrease in mental energy would seem at the most to account for a decrease in the quantity and intensity of consciousness, not in its correctness or fitness to the situations faced. If one interprets mental energy to mean nervous energy, some store of potential energy in the form of chemical compounds which may by breaking down send out nerve currents, one fails to see how the decrease in the amount of nerve energy can account for anything more than a decrease in the number or intensity or speed of nerve currents, or in psychologic terms, of mental associations. The *direction* of these currents, the *fitness* of the associations would not seem to be influenced at all. But these are the more important signs of mental ability.

Moreover, if such a decrease in a store of mental energy were the cause of mental fatigue or inability to do mental work, this inability would probably come on gradually, step by step, in proportion to the amount of work done since rest. It does not. As a fact, in some individuals seven or eight hours of mental work fails to at all decrease the ability *to* work. And in general, one finds no such gradual progressive inability as a consequence of having done mental work without rest. In general, too, what change there is is *not in the amount done, but in the increased number of mistakes or inappropriate reactions.*

It would seem, therefore, as if we ought to discard the notion of mental energy in general and of mental fatigue as the result of its exhaustion. We ought rather to resolve the fact of inability to do mental work into a number of different things. There is first infertility of associations, where nothing is suggested by a situation. For instance I have at times, in experimenting with arithmetic problems, said to myself 6 times 8 over and over again before the 48 would come. All of us have probably at times tried to think out some problem and spent an hour in blank, empty straining for ideas.

There is, secondly, the failure to get *appropriate* ideas. This may be due either to not getting the right ones or to not inhibiting the wrong ones, the latter cause being perhaps the more frequent.

There is, again, the distraction and confusion resulting from the intrusion into our stream of thought of feelings of ennui, of impulses to stretch, rest, sleep, go out of doors, or what not, of feelings of pain in the eyes and head or of a cramped position of the body. These three sorts of elements by no means exhaust the list, but they suffice to show that the phenomenon of mental fatigue is an extremely complex thing, and that its causation can not be conceived after any simple mechanical analogy.

If one wishes an analogy of some sort the inhibition of action by the formation of by-products which act as poisons is a better one to take. One might, speaking roughly, say that the relative inefficacy of the work of one who has worked, say eight hours, at arithmetic, was due to the formation as by-products of such thoughts as: "Why not let this stuff go?" "I wish that I could lie down and take a nap," "I wonder how much longer this nauseating adding must go on?" etc., of feelings of sleepiness, dullness in the head, or repugnance at the thought of the sums undone, at the feeling of the familiar association-processes, as they pass through the field of consciousness, etc. These feelings act as distractions which prevent the desired trains of thought from going on speedily and accurately, as impulses to a cessation of them and to an inauguration of rest, sleep, amusement, etc., and possibly are symptoms of a slight general weakening of the higher inhibitory processes. This sort of an analogy is admissible because it gives room for all the complexity of the facts and for the multiplicity and mysteriousness of the ways in which these by-products of mental activity may injure the quality and lessen the quantity of the work done.

It would, however, seem equally wise to go without any analogy at all, to cling closely to the facts of the case. We should be especially careful not to presuppose that mental fatigue follows the same laws as muscular fatigue, for so far as the present store of facts goes, they seem to show more differences than resemblances between the two.

So much for the *fact* of mental fatigue; now for the *feeling.* So long as anybody thinks of the fact as a simple thing, he will be likely to think of the feeling as a simple feeling caused by the fact, and caused in varying degrees of intensity by various degrees of this simple fact. He will interpret the common-sense statement—"the more mental work I do, the more mentally tired I feel"—as meaning that doing more and more mental work causes greater and greater inability to work and consequently more and more of the feeeling of mental fatigue. Now we have seen that the fact of mental fatigue is not a simple but a very complex thing, and that a regular increase in the amount of work done does *not* cause a regular increase in the inability to work. It is equally true that the intensity of the feelings of fatigue is not directly dependent on the degree of real inability present. A man may feel utterly unable to do mental work and yet be able to do work almost up to his normal standard. The feeling of fatigue is not a measure of the fact of fatigue.

The truth is, so far as I can ascertain it, that there is no such thing as a pure feeling of mental incompetency, no fatigue sensation comparable to a hot one, or a light or a hunger sensation. When I examine my mental state at times when I should declare that I felt mentally fatigued, I find certain definite bodily sensations, such as oppression in the head, occasionally feelings of muscle-strain or cramp in the eyes, fingers, back and chest—all probably due to purely physical causes—feelings of sleepiness, certain ill-defined feelings of aversion to familiar forms of mental activity when I think of going to work again, impulses to stretch, yawn, do something pleasant, etc., and at times an additional feeling of mental lassitude, comparable to the physical feeling of faintness. This last is most like what the feeling of incompetency might be supposed to be, but it is not regularly present, does not vary in intensity with the amount

of work done, and is among the least prominent of the complex elements which make up my feeling of mental inability.

If others are like me in this matter it would seem that Nature's preventive of overwork and nervous exhaustion is not one simple warning sign, a definite feeling of inability like the feeling of hunger by which she warns us to eat, but that it is a mixture, in fact a confusion of different influences. Moreover, these warnings can far more readily be set aside or neglected than those of hunger or muscular fatigue. It is more common for men to kill themselves by mental overwork than by willful starvation or bodily labor. One might roughly say that the first sign was boredom, ennui, emotional repugnance to mental work; the second would be definite pains, headaches, etc., and feelings of sleepiness; the third might be such utter mental prostration as really makes mental work impossible. Now the first two sets of signs are habitually neglected by a majority of mental workers. But the last signal is not of oncoming, but of already-present, danger. It is not comparable to the feeling of utter physical fatigue which is normal and from which one normally revives, but is a pathologic loss of function which has to be slowly regained. The evolutionist might see, in the imperfection of the first two sets of signs, in their inability to check mental work, evidence of the newness of mental work in the world's history. The danger from mental overwork, he might say, is a new danger that has not yet been provided for. A future race of men may be warned to stop mental work as clearly as we are warned to eat.

At all events we need a thorough account of these different warning signs, of their relative importance, of their abnormal appearances, of the physical and mental causes, such as bad diet on the one hand or worry on the other, which prevent sleepiness from doing its proper work and providing rest for the mentally weary even against their will. We need, too, a careful study of the conditions of effective mental work, so that we may provide them; of the unnecessary mental exhaustives, such as worry, overexcitement, muscular tensions and irritability, so that we may eliminate them; of the general diathesis of a mind incapable of much mental work, so that we may proscribe limits which such minds must not overstep.

Perhaps the most important question, at least at the start, is the question of the relation between the fact of fatigue, or mental inability, and these feelings. In how far are these warning feelings measures of real inability? How justifiably can one reason from the presence of these *feelings* to the existence of the *fact?* Many of my experiments were directed toward the solution of this problem. Mental work of various sorts was done late in the evening when the subjects—students—had stopped their regular work because they felt too tired to go on with it. Yet the quality of the work was then almost—and in some cases just—as good as that of the work done in the middle of the forenoon after a good night's rest. As one of the subjects said: "I hate to do it at night, and I don't feel like working at all, but I can do it just as well." These feelings of mental fatigue, then, may be present in considerable intensity with no diminution in the ability to work. That is one reason why they are neglected. Mental workers find that they *can* do as well in spite of these feelings, and foolishly think that because they can work, they are fit to. But we have seen, too, that it is at least possible that the power to do mental work is not a consequent of the amount of work done, and may not diminish gradually but persist unimpaired through a long period of excessive work, and then may drop to the minimum found in nervous prostration, and may therefore be consistent with danger to mental health. Because a man can do mental work may not be a proof that he ought not to rest. I do not mean to say that mere mental work is the cause of many, or even any, nervous breakdowns, but I only aim to show that a sudden immense drop in the curve of mental ability may be possible.

To sum up the matter presented in this paper: mental work is not a simple matter of mental energy, of quantity of positive or inhibitory nervous discharges, but of their *direction* as well; mental fatigue is not like a physical weariness, and requires different treatment; its warning signs are more complicated, less efficacious and so more often neglected; there is, in particular, no pure feeling of mental incompetency which might be a reliable symptom; the feelings that we *do* have are not measures of the degree of inability but indefinite and at present ill-understood signs of danger; the degree of mental inability does not vary proportionately to the amount of work done without sufficient rest, but increases much less quickly up to a certain amount of mental work and then may increase much faster, so that one straw of mental work may then break the camel's back. These facts seem only to make the problems of mental fatigue harder than they were before, but I am sure that a realization of their complexity, even without a solution, is better than a false solution on an artificial and over-simplified basis, and is the first step toward a scientific hygiene of mental work.

Teachers' College, Columbia University.

THYROID FEEDING IN OBESITY.*

BY A. W. SHERMAN, M.D.

BURLINGTON, IOWA.

Physiologists are agreed that obesity is due to a perverted nutrition, and that this perversion is due to many different causes, the chief of which is heredity. It is a difficult matter to determine just where it begins and healthy nutrition ceases; but soon after the boundary line is passed we observe several concomitant ailments which are closely associated with obesity, viz., anemia, weak circulation, scanty menstruation and sterility. History shows that obesity, sterility and amenorrhea have always been associated.

Hippocrates observed that "enormous fulness of woman is responsible for their frequent sterility, and their slaves, who are lean, conceive as soon as they have connection with men." The indolent habits and rich diet of the wealthy favor obesity and sterility, while the hardships and privations of the poorer classes favor leaness and large families.

Under normal conditions about one-twentieth of the weight of the human body is made up of fat. It is derived either from fat ingested with food, or is elaborated in the body from carbohydrates and proteids. The tissues in which it is normally deposited are bone marrow, subcutaneous and subserous tissues. If the amount of fat-forming substance ingested is too great, or if the body is unable to properly consume it, there arises a disturbance in the balance between fat production and fat consumption which leads to an accumulation of adipose tissue in the body. This in time, if unchecked, leads to a pathologic condition in which the functions of the body are seriously deranged. The tissues first affected are the bone marrow and the subcutaneous and

*Read before the Eastern Iowa Medical Association, Fairfield, Iowa, June 29, 1899.

subserous tissues. Subsequently, fat appears in regions where it is not normally found, as in the connective tissues between the muscular fibers of the heart, in the lining of the endocardium, the auricles and ventricles, and in the perimysium of the skeletal muscles; finally it is found deposited within the cells of the liver. It is first seen here as small drops of oil; gradually these coalesce into larger ones, which ultimately fill the entire cell. This condition of obesity may continue till death closes the scene by weakening the heart and circulation. Again, it may gradually disappear, the large drops of fat breaking up into smaller ones and ultimately disappearing altogether, the connective tissues and hepatic cells gradually regaining their original form and resuming their normal functions.

According to Voit, the important factor in the elaboration of fat within the body is the cell, and not oxygen. Its protoplasm possesses the power to break up complex chemical compounds and convert them into simpler ones. The substances most easily thus acted on are the carbohydrates and soluble albumins. If fat is supplied to the cell in too great quantity, or if the metabolic power of the cell is lowered so that it is no longer able to break up fat into simpler chemical compounds, it remains within the protoplasm of the cell; when the cell thus produces fat in excess within its protoplasm, and is lowered in its metabolic power so that it is unable to further break it up into simpler forms, we have the most favorable conditions in the production of obesity.

Two indications in treatment are thus clearly suggested. 1. Diminish the ingestion of fat and fat-producing foods. 2. Restore to the individual cells of the body their lost power to break up fat into simpler chemical compounds.

Heredity plays an important part in the production of obesity. It is a matter of daily observation that certain families are always lean, while others are always fat, regardless of diet or station in life. A study of the family history will show that these are family characteristics, and it matters not what the mode of life, the offspring of the lean families will remain lean, while those born to obese parents will in time become obese. There are at times apparent exceptions to this rule, but if the family history is carefully traced back for a few generations, it will be found that somewhere not many generations back, there is a history of leanness or obesity, as the case may be.

It is a matter of constant observation that the balance between fat production and fat consumption varies greatly at different periods of life. During youth and adolescence obesity is only exceptionally seen; after midlife, however, there is a general tendency toward fulness, which often amounts to obesity, if such is the family tendency. This is one of the early signs of senile decay. It is clearly stated by Paget, who says: "Some people, as they grow old, seem only to wither and dry up—sharp featured, shrivelled, spinous old folks, yet withal wiry and tough, clinging to life and letting death have them, as it were, by small instalments slowly paid. Such are the 'lean and slippered pantaloons,' and their shrunk shanks declare the prevailing atrophy." Others, women more than men, as old and as ill-nourished as these, make a far different appearance. With these, the first sign of old age is that they grow fat, and this abides with them till, it may be, in a last illness sharper than old age, they are robbed of even their fat. These, too, when old age sets in, become pussy, short-winded, "pot-bellied," pale and flabby; their skin hangs, not in wrinkles, but in rolls, and their voice, instead of rising toward a childish treble, becomes gruff and husky. Such individuals bear sickness and hardships badly. Their feeble hearts, the crippled condition of all their glandular organs and, lastly, the low protoplasmic power of all the different individual cells in the body, make them a ready prey for disease, yielding easily to death.

It is on account of these conditions that obese people bear surgical operations badly. It is the custom with many surgeons to prepare their obese patients by reducing their weight before undertaking an operation, thus reducing the danger and deriving better results.

Treatment.—Broadly speaking, we may say that anything that improves the general nutrition diminishes the amount of fat; the very treatment that makes lean people fat makes fat people lean. It embraces diet, exercise, massage, baths, electricity and the use of various medicinal substances. While all these different means of treatment are of value, either singly or combined, I shall only speak of thyroid feeding; and in speaking of this I shall not discuss its value in the treatment of other diseases for the cure of which it has proved so valuable. Its use in the treatment of obesity was discovered by accident. The rapid loss of weight, when treating cases of myxedema, suggested the possibility that it might also be of value in reducing obesity. Empirically it was tried in numerous cases with most gratifying results, and to-day it is thus used by thousands of physicians all over the civilized world.

Many different theories have been suggested as to its *modus operandi*. There are two leading ones to which I call attention: 1, the auto-intoxication theory; 2, the internal secretion theory. The first assumes that certain toxic substances circulate in the blood, and it is by the action of the thyroid gland that these are removed from the system. Should the gland be removed or diseased, these toxins remain in the body and produce harmful results. According to the second theory, the thyroid gland secretes certain substances which are necessary to preserve a healthy condition of the body. This secretion is taken up by the lymphatics and carried to the different tissues of the body, where they play an important rôle in the biochemical changes there taking place, or, as Ewald says, "The secretion of the gland acts as an antitoxin against certain toxins that appear as the by-products of tissue change."

As to the exact manner in which it affects obesity, it is at present impossible to say. If it is true that the important factor in the production and consumption of fat is the protoplasm within the cell, and the oxygen in the blood only plays a secondary rôle as an oxidizing agent, then it would seem reasonable to suppose that thyroid in some way increases the metabolism in the cells of the body and enables them to more vigorously split up the fat within their walls.

It has been shown by Thierfelder, of Berlin, that: 1. The metabolism of nitrogenous substances is only slightly increased. 2. The effect on general nutrition is shown by a decrease in the weight of the body. As the elimination of nitrogenous products is not increased, the loss must come chiefly from the non-nitrogenous elements of the body. These are the fats or carbohydrates. To prove this he shows that: 1. There is a marked increase in the elimination of CO_2; this shows increased oxidation of carbonaceous material. 2. The loss of weight is most marked in obese people.

During the past four years I have used thyroid extract in a number of cases, to reduce obesity. My results

have been very satisfactory, both to myself and to my patients. Unfortunately, in most of these cases I have not preserved notes showing the exact results, and consequently it is impossible to report them. However, the results compare very favorably with those of the case I report below. In many of the patients I made no attempt to regulate diet and habits of life, nor did I hear complaints of weakness or derangement of circulation. I did, however, combine the thyroid treatment with iron and bitter tonics, and always gave especial attention to the excretory organs.

Recently I have had one very interesting case, the notes of which I give below:

Miss X., aged 26 years, gave a good family history except that her parents are quite fleshy. Her past history was negative, except that she has always been constipated and had frequent headaches. Feb. 12, 1899, her weight was 215 pounds. She complained of severe pain in her feet, headache, severe constipation, menstruated every three weeks with pain, was obese and anemic. She was especially anxious to get relief from her obesity, as her weight was a burden to her. She found it difficult to stoop down to lace her shoes or do anything that required stooping. Her size was also a great embarrassment to her.

I placed her on 2.5-gr. doses twice a day, and gradually increased to 5 gr., which dosage was continued to May 29, when the thyroid was omitted till June 17, thinking a short rest would cause the medicine to have a better effect.

The following record of weights and measures will be of interest in showing her progress:

February	1,	1899,	her	weight	was	215	pounds,
March	6,	"	"	"	"	206	"
March	13,	"	"	"	"	204	"
March	20,	"	"	"	"	201	"
April	1,	"	"	"	"	202	"
April	4,	"	"	"	"	199¼	"
April	5,	"	"	"	"	198¼	"
April	7,	"	"	"	"	197	"
April	10,	"	"	"	"	196	"
April	15,	"	"	"	"	195	"
April	18,	"	"	"	"	194	"
April	20,	"	"	"	"	193	"
April	21,	"	"	"	"	192	"
April	22,	"	"	"	"	194	"
April	26,	"	"	"	"	193	"
April	28,	"	"	"	"	191½	"
April	29,	"	"	"	"	189	"
May	3,	"	"	"	"	189½	"
May	5,	"	"	"	"	188½	"
May	8,	"	"	"	"	187	"
May	10,	"	"	"	"	187½	"
May	12,	"	"	"	"	187	"
May	15,	"	"	"	"	184½	"
May	16,	"	"	"	"	181	"
May	17,	"	"	"	"	181	"
May	25,	"	"	"	"	179½	"
May	26,	"	"	"	"	177½	"
May	27,	"	"	"	"	178½	"
June	7,	"	"	"	"	177½	"

MEASUREMENTS.

March 6	April 20	May 21
Bust	Waist	Hips
42	32	47½
40	32	44
38	28	

From February 1 to May 29 she decreased from 215 to 178½ pounds, or 36½ pounds:[1]

As a result of her treatment she feels stronger and does not get fatigued so easily. Her form is greatly improved and her present weight is not a burden to her.

My observation in ordinary cases is that, if thyroid tablets are used occasionally after regular treatment has been stopped, the weight can be kept down almost indefinitely. I have used them only as the weight begins to increase. After a few days it is discontinued until needed again.

In presenting this paper I make no special claim for the treatment, more than that it reduces weight, adds to comfort, and I have seen no deleterious effects from its use. I believe that in properly selected cases it is of very great value.

CASE OF DOUBLE CONGENITAL LUXATION OF THE HIPS: ONE REPLACED BY MANIPULATION AND THE OTHER BY OPERATION.*

BY GWILM G. DAVIS, M.D.

PHILADELPHIA.

The patient, a little over 5 years of age, started to walk when 9 months old. It was noticed that her gait was unnatural and, as she grew older, her back became hollow and her buttocks prominent. At the age of 3½ years, after she had been walking for two years and nine months, she came under my care at the Orthopœdic Hospital. She then possessed the marked waddling gait of this affection. Lordosis was quite marked, the hollow in the back being pronounced. Both trochanters were well above Nélaton's line. In standing she did not hold herself perfectly erect, but slightly flexed both the hips and the knees. Ether was administered and tenotomy of the adductors of both thighs performed. Then, by manipulation, both femurs were restored to their sockets. Both the luxations being dorsal ones, the limbs were put up in plaster of Paris, in an abducted and outwardly rotated position. They were so kept for six weeks, and, on examination, the right hip was found still in position while the left was again out. The right leg showing a tendency to inward rotation, a silicate of soda dressing with an iron strip was applied to keep it in proper position. Extension was applied to the left hip. The patient then had an attack of measles, and, about six months after the right hip had been replaced, the left was again put in place and an incision made down to the capsule and it was gathered together and sewed with three, chromicised catgut sutures. The wound was packed with gauze. It was thought that perhaps enough contraction might be produced in the capsule to hold the bone in place. On removal of the plaster cast six weeks later, the hip was found to be again out of place, so two months afterward the joint was opened and a fairly well-developed femoral head was found. The capsule was stretched and the acetabulum was nothing more than a flat surface about the size of a thumb-nail. By means of a gouge and rose-burr (for a description of which see Trans. Am. Orthopedic Assn., 1899), a new acetabulum was formed and the head of the femur placed therein.

About two months after this operation a belt with perineal straps was fitted around the trochanters, and the patient was allowed to walk around. Shortening on the operated side was about a quarter of an inch. A skiagraph, kindly taken for me by Professor Goodspeed, a short time after, showed both hips in place. At the present time, eleven months since the last operation and a year and ten months after the non-operative replace-

[1] July 28, 1898, her weight was 168 pounds, bust measurement 38, waist 28, and hips 42 inches. This makes a total loss of 47 pounds. Of late I have used thyroid extract, gr. x, morning and evening. Her health is much improved.

*Read before the Philadelphia Pediatric Society.

ment of the right hip, she walks with a slight limp. The shortening amounts to one-half inch, and she has entirely lost the waddling gait. The back is now straight, the lordosis having disappeared. About three months ago she had an attack of scarlet fever, and since that time has not worn her hip belt nor any apparatus whatever.

255 South Sixteenth Street.

PROGRESS IN BACTERIOLOGY.*

BY EDWIN C. BALDWIN, M.D.
DIRECTOR OF THE LABORATORY OF HYGIENE, PRINCETON, N. J.

As there have been no epoch-making discoveries in bacteriology during the past year, I shall not confine my remarks to what has been brought to light during that time, but rather attempt to show what bacteriology of to-day is in its relation to the sphere of medicine, and incidentally mention a few of the resuts of more recent investigation.

While bacteriology is still in its infancy, and thousands of bacteriologists are devoting their best energies to the development of the science in its various phases and along different lines, we are all of us aware that the benefits which it already affords to the practitioner and to the public are manifold and far-reaching. Though broad in their scope, they are definite and tangible. Some of the most patent ways in which bacteriology has contributed to the advancement of medicine are: 1, in affording a quick and certain diagnosis; 2, in affording valuable remedies for the prevention and cure of certain diseases, and 3, in giving us more definite knowledge as to the nature of disease and the prevention of its spread.

So important and valuable has the work of diagnosis become, that many municipal, state, and other public and private laboratories have been established for its execution. Thus, in the laboratory, by the examination of cultures, excreta, diseased tissues, and their products, we are able to make a diagnosis which is practically certain in a large number of diseases. Of these I may mention cholera, plague, yellow fever, influenza, septicemia, pneumonia, meningitis, malaria, gonorrhea, anthrax, glanders, hydrophobia, typhoid fever, diphtheria and tuberculosis. In most of these the diagnosis is equally certain and can rarely fail when properly performed, though much depends on the stage of the disease at which the test is made. Some of them, either because of necessary delay or because we seldom or never have to deal with the disease for which they are performed, are of little practical value to us. Those diseases in which the laboratory diagnosis is perhaps of most value to us are tuberculosis, diphtheria, typhoid fever, gonorrhea, malaria and hydrophobia.

In tuberculosis, for instance, we are able, on account of the peculiar staining qualities of the bacilli, and their power to resist decolorization, to make a diagnosis from the sputum or pathologic tissue of tuberculous patients. It is possible to make the diagnosis in cattle by another method quite as simple, i. e., by the use of tuberculin, which will be mentioned later in its relation to the prevention of disease. In diphtheria, by the examination of cultures from the diphtherial exudate, it is possible to make a nearly certain diagnosis, on account of the peculiarities of morphology as brought out by staining. In hydrophobia, though we have not as yet discovered the germ which we have good reason to believe is the cause of the disease, we are able in the laboratory to make a positive diagnosis. In gonorrhea we are not only able to make the diagnosis from the examination of the usual discharge, but it has recently been shown by Drs. Thayer and Lozier,[1] and by others, that the gonococci may be present in the blood and tissues of patients during the various complications and sequelæ of gonorrheal urethritis. The results of their work are summed up as follows: 1. Acute gonorrheal urethritis may be the starting-point for a grave general septicemia. 2. It may be a mixed or secondary infection. 3. Endocarditis is sometimes a complication of gonorrhea. 4. Endocarditis may be transient or rapidly fatal. 5. Endocarditis following gonorrhea is due usually to gonococci alone, but may be a secondary or mixed infection. 6. Pericarditis may occur, but is less frequent. 7. Grave myocardial changes are common in severe cases. 8. In some cases the diagnosis of gonorrheal septicemia may be made from blood, culturally, during life.

But perhaps the diagnostic test which is most strikingly useful and reliable is one which is much newer than any of these, and which is performed in quite a different manner, i. e., not by finding the organisms in the excreta, etc., but having the organisms in pure culture, by the effect produced on them when brought in contact with the blood or serum of patients afflicted with the disease of which they are the cause. I refer to the serum reaction of Pfeiffer and Grueber. This is due to a certain agglutinating property in the blood and serum of patients affected with many of the bacterial diseases, and is specific for the bacteria which cause a given disease. It is especially useful to us in the diagnosis of typhoid fever.

While everyone is more or less familiar with the test, there may be some who are not familiar with the method and the reliability of the test. I will, therefore, briefly go over the method as performed in most laboratories. Blood is obtained by pricking the finger or the lobe of the ear of the suspect, is placed in neat drops on a glass slide or piece of hard-finished paper and allowed to dry; or preferably the serum from a small blister is drawn in a capillary tube which is then sealed and sent to the laboratory. Some of this blood or serum is there mixed with water, a loopful of a fresh bouillon culture is then added and mixed—the exact dilution being noted—and the preparation is examined under the microscope. If the case be one of typhoid fever, the bacilli will usually be seen to lose their power of motion, and will collect in clumps or small rafts. The test may also be performed by the use of dead bacilli, as has been shown by Vanda Valde, Widal and others. I have used the dead cultures in hundreds of cases, and have found them quite as reliable as the living. The reaction when present is absolutely diagnostic when occurring in high dilutions. When not present, the converse can not be said, for the reaction is not always present, especially early in the disease, and may not occur until convalescence. It usually occurs by the end of the first week.

For obvious reasons, none of the ordinary tests as performed in routine diagnostic work are reliable when taken apart from clinical data and their circumstances. There are several bacilli which closely resemble tubercle bacilli in their staining properties, such as those found in timothy hay, in smegma, in leprosy, and in the early lesions of syphilis. A bacillus has recently been discovered which not only has these characteristics, but which also produced similar lesions in domestic animals. The bacilli can, however, be differentiated culturally, and the diseases can be differentiated by the use of tuberculin. There are several bacilli closely resembling the bacillus of diphtheria, but which do not usually occur in the throat. Recently,[2] however, one has been discovered

*Read before the N. J. Medical Society.

which does occasionally occur in this location, but which causes general septicemia, and none of the local diphtheria lesions in animals.

In passing, we may mention a few of the results of recent investigation. J. W. Eyre[3] has discovered the cause of a disease which he terms diplo-bacillary conjunctivitis, in the bacillus lacunatus, so named from its peculiar method of growth. Koplik has discovered the bacillus causing whooping-cough.

Recent research has shown that the bacillus of tuberculosis is probably not a bacillus but a minute fungus.[5] Nocard, Roux and Metchnikoff were among the first to call attention to the branched forms, and Babes, Levaditi, Friedrich and others have succeeded in producing, intracranially, ray-like colonies resembling actinomycosis. The cause of cancer,[6] according to a number of investigators, has been shown to be a blastomyces. Many diseases which are at present only named by terms referring to the part of the body affected will perhaps in the future be more clearly defined and diagnosed bacteriologically. In the modification of media and along other lines, there is here a wide field for investigation.

We will next turn our attention to bacteriology in its relation to therapeutics. Following the discoveries of Behring and Koch, much more was hoped for serum therapy in the treatment of all manner of diseases than is hoped at the present day. For most of the sera which have thus far been tried have proved of little or no benefit in the prevention of disease. This is largely due, no doubt, to our lack of knowledge as to the nature of toxins, antitoxins, immunization, etc., and partly to the fact that certain diseases from their very nature are not amenable to such treatment.

Therapeutic sera act in one of two ways: They either prevent the growth and activities of the bacteria, eliminating them from the system or holding them in abeyance; or they counteract the effects of the poisons which the bacteria produce, by fortifying the tissues against these poisons, or by so combining with them as to render their action neutral. In no case can they repair the damage already done, and in many they are of little benefit once the disease is under way. The exact nature of none of these substances or of their action is as yet understood, and perhaps never will be, though recent research is throwing much light on the subject.

But against a number of diseases we are able to wage successful warfare, be it by fortification or by open combat. Against diphtheria we have an antitoxin so potent that 1/700 of a c.c. will immunize a guinea-pig against 100 fatal doses of diphtheria toxin. Against tetanus we are able to obtain a serum of such strength that 1 c.c. will protect against 1,000,000 times the fatal dose. Of the efficacy of diphtheria antitoxin in animals, there can be no more question than of the fact that a stone, when severed from its support, will fall to the ground. As to its value in the treatment of diphtheria as it occurs in man, practitioners of the civilized world, with few exceptions, are agreed that it is equally certain in its effects when applied before the disease has made its ravages on the system and that even late in the disease it is of some benefit. The few who arbitrarily deny that it has any value would seem to be almost as lacking in the ability to reason as the learned member of the R. C. S. E. who has recently, in an elaborate article, as arbitrarily denied that bacteria are a causative agency in, but rather the result of, disease.

Tetanus antitoxin in its action is even more potent than is that of diphtheria. In immunization and early in the disease before violent symptoms appear it is certain and reliable. But in the treatment of the disease as usually applied, it has much less value, for two reasons: 1, because the disease is not usually discovered until the symptoms appear and the toxin has already poisoned the tissues; 2, because when used thus late in the disease it can not repair the damage already done by the toxin of tetanus.

A method of administration, however, has recently been discovered, by which, even after violent symptoms have appeared, we may still protect the patient from its ravages and save his life. That is, by the intracerebral injection of antitoxin. Wasserman was the first to show that when tetanus toxin is mixed with emulsion of nervous tissue of a susceptible animal and this mixture injected, no symptoms appear, and that therefore tetanus toxin has a special affinity for nerve tissues and is a direct nerve poison. Semple has shown that though an animal is injected with a protective dose of antitoxin, and later subdurally with the toxin, it will still develop cerebral tetanus. Following these discoveries Roux and Borrel[7] brought out the fact that the disease may be treated successfully even after violent symptoms have appeared, by injecting the antitoxin intracerebrally. Therefore, in practice it is recommended to inject subcutaneously, if the disease is suspected, or has only just appeared; if late, and violent symptoms have appeared, to inject intracerebrally. The first case actually treated in this way was in April, 1898, by Chaufford and Quenin[8]. Since then many cases have been treated with good results.

For plague we have an antitoxin which has been shown to be antitoxic, bactericidal and curative. Opinions differ as to the therapeutic value of tuberculin. The antistreptococcus and antipneumococcus sera are uncertain and unreliable in their action. The antitoxin of typhoid fever has been shown by Wright and Kemple to have some value in immunization. The Pasteur treatment of hydrophobia has proved to be thoroughly reliable in the hands of many investigators. Some experiments by Dr. Cobat[9] on cauterization in hydrophobia, are worthy of mention. He finds that cauterization with fuming nitric acid, within twenty-four hours after infection, will save 91 per cent. of cases.

We have seen a few of the ways in which bacteriology has contributed to medicine in the diagnosis and treatment of disease. In its relation to personal and public hygiene the results are still more notable. Time will not permit me to go into the subject in detail, and I shall have to be content with simply hinting at a few of the most striking illustrations.

By affording us a more definite knowledge as to the cause of diseases, the manner in which they spread, the conditions which are favorable and unfavorable for the growth of bacteria both inside and outside the body, and the limitations of their resistance to deleterious agents, bacteriology shows us how we may and may not prevent the propagation of disease. I will briefly mention a few of the results of recent investigation as bearing on this subject.

Theobald Smith[10] has shown by some careful experiments that the death point for tubercle bacilli in suspension is 60 C., in fifteen to twenty minutes, and that the scum of milk, after sterilization as ordinarily performed, may contain living, virulent tubercle bacilli. Careful comparison of bovine and human tubercle bacilli has shown the bovine variety to be more virulent to animals[11]. In tuberculin we have a reliable diagnostic test for tuberculosis in cattle. We can thus, by destroying all tuberculous cattle, remove all danger of infection from

tuberculous meat and milk. Mitchell and Cronk[12] have shown that our ideas as to the value of sunlight as a disinfectant need modification, for they found that tubercle bacilli on soil may still live after an exposure to direct sunlight for thirty-five hours, and that dried sputum is therefore dangerous even after long exposure. When, by the education of the masses, we can secure proper cleanliness in their habits, the principal sources of danger will be removed. In regard to typhoid fever, it has been shown by Hiss[13], by Richardson[14], and by others, that the feces and urine of typhoid patients contain typhoid bacilli until far into convalescence, and may therefore be a fruitful source of danger unless the excreta are carefully disinfected.

That flies, mosquitoes, and other insects are a prominent agency in the spread of disease has long been surmised, but by recent investigation this has been proven beyond a doubt. Major Ronald Ross, in a recent number of the *Ann. de l'Institut Pasteur,* has given us the results of a very careful series of experiments on the rôle of mosquitoes in malaria. He has found the organisms in the stomach and in a gland, the venomo-salivary, which is connected with one of the styles with which the mosquito pierces the skin. The cycle he shows to be complete. The hemotozoa enter the stomach of the mosquito, grow in its walls and give rise to germinal filaments. These penetrate the venomo-salivary gland and thence are disseminated through the capillaries of the sound subject. These experiments were performed on birds, but probably hold true for man. Nuttall has found the bacillus of plague in the stomach of flies. In some of our camps, during the late war, it was shown that flies were an important factor in the spread of typhoid fever. These are sufficient hints to show us the importance of protecting all infectious material from flies.

In the matter of disinfectants, as a result of many careful experiments, our ideas have undergone considerable modification. It is no longer considered rational, for the purpose of disinfecting a room, to set out dishes containing a disinfectant or to hang up cloths saturated therewith. To be efficacious the disinfectant must be in direct contact with the organisms for a sufficient length of time and under suitable conditions to destroy them. The best disinfectant known at present for rooms, clothing, bedding, etc., is formaldehyde; but even this has its limitations, which are well brought out in an article by Dr. Park in the *Medical News* of May 13, 1899.

Many of the great problems of bacteriology are still unsolved. Most bacteriologists are simply following in the lines of a few leaders. As in other fields, only now and then does a great genius arise to bring forth some new and important discovery. Perhaps the time will come when, by the use of suitable media and of suitable methods, we shall be able to find the cause of all diseases, and a specific cure for most of them.

BIBLIOGRAPHY.

1. Jour. of Exp. Med., Jan., 1899.
2. Miss L. Davis: Med. News, April 29, 1899.
3. Jour. of Path. and Bact., May, 1899.
4. Centralbl. f. Bact., April, 1899.
5. Craig: Jour. of Exp Med., 1898.
6. Lancet, April 14, 1899.
7. Ann. de l'Institut Pasteur, April, 1898.
8. La Presse Méd. June, 1898.
9. Med. News, March, 18, 1899.
10. Jour. of Exp. Med., 1899.
11. Ibid., 1896, p. 451.
12. Jour. of Path. and Bact., May, 1899.
13. Jour. of Exp. Med., 1897.
14. Ibid., 1898.

Disinfection After Measles.—*The Lancet* of March 10 says that in 1895 disinfecting operations were undertaken in 38,000 cases, and during 1898, in 63,000, mostly cases of notifiable disease.

SHOULDER-HUMERO-SCAPULA ARTICULATION.

SOME OF THE COMPLICATIONS AND SEQUELAE ATTENDING OR FOLLOWING REDUCIBLE OR IRREDUCIBLE DISLOCATIONS, WITH A BRIEF REVIEW OF THE VARIOUS MODERN OPERATIVE MEASURES NOW EMPLOYED FOR THEIR TREATMENT.*

BY THOMAS H. MANLEY, M.D.

Visiting Surgeon to the Harlem Hospital; Professor of Surgery in the New York School of Clinical Medicine.

NEW YORK CITY.

The subject of the displacement of bones from their articulations constitutes one of the most interesting and important in traumatic surgery, though of late years, since regional and visceral surgery has so engrossed our attention, we find that in current medical literature but comparatively little attention has been bestowed on it.

It can not be said that the treatment of shoulder luxations has shared in the advance so notable in other directions, through the discovery of anesthetics and antiseptics; nor that we always have a proper understanding of all the anatomic factors involved in the various phases and types of dislocations, their pathologic changes or clinical features. Holmes has noted our indefinite knowledge of the pathology of shoulder luxations, and observes the wide diversity of views between the English and French surgeons. Pott declared that "no part of surgery is thought so easily understood as that which relates to fractures and dislocations, for even the most inexpert practitioner deems himself perfectly qualified to fulfill the part of the surgeon here."

Pott inveighed against the abject servility of his time, and shows that a century since "authority" had been a dead weight on scientific progress, and he adds, "when a thing is submitted by a living writer it ought to have as much weight as though it had proceeded from the remotest antiquity; its use and not its date should give it value. If practitioners since the time of Albucansis had been contented with his doctrines and never ventured to think for themselves, surgery would not be what it is to-day, and its greatest reliance would have consisted in a multiplicity of hot irons."

Progressive science and ever-enduring art have revolutionized our therapy of osseo-arthritic lesions, and led to restoration of function, and the sparing of much which formerly had to be sacrificed; still, not until very recently have those made any special impress on the management of the complications attending the luxations of joints.

The stagnant state of progress in this direction may perhaps in part explain why, with but unimportant exceptions, the same stereotyped, indifferent, and inaccurate descriptions of shoulder luxations are servilely copied from one author to another without any material alteration or amendment. And if the descriptions of the causes and conditions existing are faulty or deficient, their pathology and morbid anatomy have, until late years, been quite generally ignored. But the painless, aseptic, exploratory incision and skiagraphy have revolutionized all this.

CONFUSION AND MISAPPREHENSION THROUGH AN INDEFINITE AND MISLEADING NOMENCLATURE.

Through the absence of a clear conception of the complex functions of the shoulder, of a practical knowledge of its mechanisms, and the faulty designation of some of its traumatisms, mistakes and oversights have been

*Presented to the Section on Surgery and Anatomy, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

committed through which improper or injudicious treatment may follow.

Before it is possible to have a clear comprehension of what a shoulder dislocation is, it is well to know that there are three articulations at the shoulder, that the articular head of the humerus moves under the acromian vault, and that the outer head plays under the coracoid process; what Bichat designated "the accessory or physiological articulation."

We speak of the "head" of the humerus, sometimes meaning one thing, and sometimes another. What is commonly understood by "the head" is the greater tuberosity of the humerus, Astley Cooper being the only author who correctly called it the *external* head. The articular head has no osseous socket, but moves on a nearly flat surface.

The physics of the humero-scapula joint is exceedingly complex, and has not yet been adequately explained.

In obedience to custom, though in violation of scientific nomenclature, the term dislocation of the "shoulder" will be used for the humero-scapula, joint here.

GENERAL OBSERVATIONS ON SHOULDER DISLOCATIONS.

Dislocations at the shoulder or humero-scapula articulation present many striking and unique features. As to their frequency, they are about as numerous as all others combined. In 1828 there were admitted in the service of Dupuytren 1515 surgical cases, of which 12 were shoulder dislocations—1 to 126. In the years 1818 and 1819 there were admitted into the Hotel Dieu, 3900 surgical cases, of which there were 20 dislocations—1 to 145. Malgaigne, in estimating on these statistics, very properly observed that the proportion of dislocations in a surgical service must depend very largely on the class there treated, and stated that at the St. Louis, where traumatic surgery predominated, the ratio was 1 to 26. But in our time, when the domain of operative surgery has so enormously expanded, the proportion of cases of dislocations to all others surgical is very greatly reduced.

Through the kindness of Dr. Schoonover, house surgeon of Harlem Hospital, New York City, I have had the total number of surgical cases preceding 1898, and find that 6694 were admitted, of which 79 were shoulder dislocations—1 to 84. The greater number of cases admitted to this service are traumatisms—about two-thirds. Statistics show that the ratio of dislocations to fractures is 1 to 10; those of the shoulder to fractures of large shafts—1 to 30; Malgaigne placed the figures 1 to 12. Into the Harlem Hospital service there were admitted during the decade from 1888 to 1898, 2607 fractures of the long shafts and 79 shoulder dislocations—1 to 33. It may be said that in general practice they are seldom met with.

Varieties and Complications.—In no other articulation do we encounter so many distinct varieties of luxation as at the shoulder; and in none are complications so common or so serious in the extremities, if we exclude the knee. In many instances it is quite impossible to decide at the primary examination just what type of dislocation is before us, or what the character or degree of complication is.

Causation.—Violence, direct or indirect force or muscular contraction alone, will displace this articular head of the humerus. A very remarkable case of the latter is recorded by H. Watson. The patient was seized with pain in his arm during sleep; the patient was first treated for rheumatism. McLaren has published another of a similar character, where the attending physician at first believed that the patient had neuralgia and treated the patient with hypodermics of morphin.

Symptomatology and Diagnosis.—In a considerable number, the symptoms following shoulder dislocation are so indefinite that we may go on for days or weeks without suspecting the real character of the injury; and no dislocation is so often attended with difficulty in diagnosis. In some of these, unless great caution is observed, the most experienced surgeon may fall into error in diagnosis, may even go so far as to labor in vain, to reduce a dislocation which does not exist.

EFFECTS OF DISLOCATION AT THE SHOULDER; ITS COMPLICATIONS AND SEQUELAE.

A *complete* dislodgment or luxation of the humeral head must always entail a subsequent impairment in action and strength of the joints. Such dislocations, Erichsen declared, were often followed by serious effects on all the joint structures.

Fractures of various descriptions complicate dislocations here, in many the muscular, neural, and vascular structures suffering serious damages.

Incomplete dislocation of the humeral head is very frequent. It is rarely found in any other arthrodia, and for various anatomic reasons may at times be equally as serious as the complete. The number of sequelæ of these dislocations is large. Some of them are of a constitutional character, depending on morbid susceptibilities inherited or acquired; besides there are the sequelæ inherent to the injury itself.

In a young growing child the most marked changes induced by a complete dislocation, whatever may be its cause, or however soon reduced, is an evitable alteration in the nutrition of the tissues. Hippocrates noted that the limb of a child which had been dislocated did not make as good progress as the other unaffected.

Irreducibility is always a serious sequel. In shoulder dislocations, we observe some of the most remarkable vagaries in their resistance to efforts at reduction. Some of them can not be reduced by any means short of section; sometimes after the complete failure of all expedients, they undergo spontaneous reduction during sleep or by the ordinary handling of the limb. Velpeau cites a case in which the arm was reduced in helping the patient to rise. A woman had a dislocated shoulder which resisted manipulation and traction; the following day she accidentally fell on her shoulder, after which the shoulder was found reduced. Many times reduction is effected automatically by manipulations of the patients themselves.

It is my belief that a considerable number of dislocations of the shoulder are spontaneously reduced when complications are not present. Many dislocations are said to be "reduced" when this is but incomplete.

Malgaigne noted this at the Hotel Dieu, where, he said, after reduction there yet remained a lengthening of the arm, and the external head remained rather below the acromian. This he ascribed to a diminution of the capacity of the glenoid cavity. In my experience, this descent of the arm has been found to more generally depend on pathologic changes in the muscles.

(To be Continued.)

Treatment of Keratitis Profunda.

E. Guttmann writes to the *Wiener Klin. Rund.* of February 11 that treatment of keratitis profunda with silver nitrate—small children excepted—is ineffectual and has rather a tendency to be injurious. Atropin has no influence on the process in the cornea, and should therefore be sparingly used, and irritating measures of all kinds avoided. On the other hand, the systematic application of cocain has a favorable effect on the corneal process and is to be recommended for its freedom from irritating properties and its direct healing influence.

Therapeutics.

Methylene Blue in Malaria.

In certain individuals, the administration of quinin gives rise to unpleasant symptoms, says J. W. P. Smithwick in the February number of *Merck's Archives*. The untoward results have caused investigators to search for some substitute for quinin. For several years certain physicians have been experimenting with methylene blue, and have found it to possess very decided antimalarial properties. The medicinal preparation is a simple hydrochlorate of tetramethylthionin and is free from arsenic and zinc. It is usually administered in two-grain doses six times a day, in the form of capsules or pills. It will appear in the urine about an hour afterward, making it intensely blue. It acts as a diuretic, which is a valuable consideration in cases where there is a tendency to hematuric complication.

A table of fifty cases of different types of malaria accompanies the article. Of these, there were 24 cases of quotidian, 4 of tertian, 3 of quartan, 5 of estivoautumnal, 3 of hemorrhagic and 1 of double quotidian malarial fever. All but 7 recovered; 3 of these refused to take methylene blue after the first day, and the remaining 4 were in bad physical condition, their deaths resulting from organic disease. The remedy has a two-fold effect in the hemorrhagic type of malarial fever—that of a parasiticide and a diuretic. A relapse in one instance responded to the treatment, in this respect differing from the usual results of quinin administered under the same condition. The treatment was continued ten days after the last chill. He concludes that cases need not be selected on account of idiosyncrasies, as the methylene blue produces no bad effects if given intelligently; he believes it to be a perfect substitute for quinin. It is of especial value in the malaria occurring during pregnancy, as it has no oxytoxic effect and increases elimination by the kidneys.

Notes for the General Practitioner on the Treatment of Iritis.

N. B. Jenkins (*New York Medical Journal*, Feb. 24, 1900) says that this is one of the most deceptive and destructive of eye diseases and is often mistaken for conjunctivitis. Predisposing causes are syphilis, rheumatism, or disease or injury of the cornea; the symptoms are severe pain in the temple, forehead, or cheek and eyeball, these being increased by light, redness of the white of the eye, and generally an increased secretion of tears, and an unusually small pupil. The diagnosis is made by placing a few drops of 2 per cent. solution of cocain into the eyes and having them closed for a half hour. If iritis is present, there will be little or no dilatation, or dilatation will be irregular, slight discoloration of the iris, the deep vessels of the white of the eye back of the edge of the cornea will be congested, the pupil will not respond to light and the eyeball will generally become harder to the touch. If not present, the pupil will be dilated and perfectly round.

The results of iritis are liable to be complete attachment of the pupilary margin of the iris to the lens capsule, stopping the flow of the aqueous fluid through the eye, and an increased tension of the eye-ball, either of which may destroy the eye in a few hours.

When iritis is caused by constitutional diseases, treat these. Hot foot-baths, salts, and small doses of calomel are nearly always serviceable. The eye should be treated with one drop of 2 per cent. atropin solution, not oftener than three times a day and less often if extreme dilatation can be maintained. The patient should be kept in the dark and hot compresses applied. Where but one eye is affected, one drop of a 1/5000 atropin solution, should be placed in the other once a day, to overcome the consensual influence of the sound eye; where this is done a smaller quantity will be required to fully dilate the diseased eye. In extreme cases, where the maximum dose of atropin will not keep the pupil dilated to the utmost, the cornea should be punctured to relieve intraocular pressure. This operation may be performed several times if necessary. He thinks that this simple operation is performed once where it is indicated one hundred times, as the persistent use of atropin not followed by dilatation will eventually destroy the eye, especially in the aged. Congestion and pain may be relieved by saturating a large pad of cotton in a corrosive sublimate solution, 1/50,000, and applying to the eye for a half hour several times a day. He prefers to pad the eye with wads of soft cotton wool kept in position with strips of adhesive plaster and covered with a mask or bandage, to keeping the patient confined in a dark room, but absolute darkness must be maintained in acute cases except at examinations. All hot compresses must be applied in a dark room, and undue pressure from these or bandages must be avoided.

In chronic iritis, the oculist should select dark glasses, as those found in the shops are full of defects.

Morphin-Chloral Treatment of Eclampsia.

Forty-five patients with puerperal eclampsia recovered under Stroganoff's treatment with oxygen during the attack; immediately afterward a hypodermic injection of .015 gm. morphin, repeated once or twice at intervals of an hour or possibly less. Two to four hours after the last injection a rectal injection of 1 to 8 grams of chloral is given, and the patient kept slightly narcotized for forty-eight hours by giving 1 to 5 grams of chloral per os or per anum. The mouth and nose must be watched for obstruction with mucus. Milk or tea with brandy is given frequently, with rectal injections of salt solution or milk as necessary. (*Med. Oboz.*, 1899, 10). He considers diaphoretics or chloroform dangerous. Delivery is accomplished at once, if free from danger for mother and child. All the children were saved but 11 per cent. He adds that 25 per cent. of 70 patients, treated by other methods, died.

Cough of Influenza.

Carpenter highly recommends the following prescription:

℞. Ammon. muriat.....3iss
Morphinæ sulphatis.....gr. ii
Tinct. sanguinariæ
Syrupi ipecac, āā.....3iv
Syrupi glycyrrhizæ.....℥i
Aquæ .....℥ii

M. Sig. Dose one teaspoonful.

BACCELLI'S POWDERS FOR INFLUENZA.

In cases in which the fever and the nervous symptoms are severe, Baccelli recommends the following formula:

℞. Quininæ salicylatis.....gr. iii
Phenacetin .....gr. ii¼
Camphoræ .....gr. 3/10

M. Sig. Six such doses may be taken in twenty-four hours.

Fatty Heart.

Dr. A. Robin recommends the following:

℞. Sodii arsenatis.....gr. 1/64
Potassii iodidi.....gr. 3/4
Pulv. nucis vomicæ.....gr. 1/8
Pulv. rhei.....gr. 3/4
Ext. dulcamaræ.....gr. iss

M. Ft. pil No. 1. Sig. One pill daily.

Bartholow advised the following in fatty heart anemia:

℞. Ferri redacti.....gr. xx
Pulv. digitalis.....gr. xx
Quininæ sulphatis.....gr. xx
Pulv. scillæ.....gr. x

M. Ft. massa et in pil No. xx, div. Sig. A pill three or four times daily.

A Hemostatic-Anesthetic Solution.

Legrand (*Journ. des Prat.*, quoted in *Therap. Gazette*) employs the following solution, particularly in lesions of the mouth where it is desired to produce anesthesia and arrest small hemorrhages:

℞. Gelatin, pure.....gr. xxx
Sodii chloridi.....gr. viii
Acidi carbolici.....gr. ii
Eucain B hydrochloratis.....gr. viii
Cocainæ hydrochloratis.....gr. ii
Aquæ destil.....℥iiiss

Arsenic as a Corrigent in Thyroid Medication.

The *Lyon Médical* cites Dr. Léon Mabille, of Rheims, as having found that Fowler's solution, in daily amounts of from five to fifteen drops, prevents the tachycardia, the nervous derangements, and the loss of flesh that are apt to be occasioned by thyroid medication.

Use of Digitalis in Heart Affections.

J. B. McGee, in the *Cleveland Journal of Medicine* of February, says the most important thing in chronic heart disease is to maintain the integrity of the cardiac muscle—that while it is in a condition to maintain the compensation, treatment is rarely required. When compensation is diminished, its restoration must be secured along the lines of lessening the heart labor, increasing its power, and improving the nutritive supply. Almost universally, the profession agrees to assigning to digitalis the first place among remedies to bring about these conditions. Physical rest is considered the most important aid in treatment. The drug is eliminated slowly and hence doses at long intervals are sufficient to keep up the repair. Its cumulative effect may be feared where free diuresis does not follow. but this may generally be avoided by giving medium or small doses, diminishing them, and occasionally skipping a dose, as dropsy and other symptoms disappear. When the heart becomes normal, a substitute may be employed.

Of the four constituents of digitalis, he has confined himself almost exclusively to digitalin, but refers to the favorable reports of clinicians in the use of digitoxin. In the presence of high tension a vasodilator should be combined with the drug, and in such case, nitroglycerin is oftenest used. The value of the latter lies in its relief to resistance, rather than any stimulating effect. When indicated, the two drugs may be given separately—the nitroglycerin frequently and the digitalis at longer intervals.

There are occasionally cases of dyspnea and dropsy where the representative remedies are followed by slight result; these distressing symptoms commonly disappear when a mercurial is added to the list. In such cases he prefers a mild chlorid, one grain three times a day. He thinks the benefit is due not wholly to the diuresis, but partly to the stimulation of secretory activity and diminishing hepatic congestion. With proper care, the mercurial may be continued over a week, but should then be withdrawn for a short time, to be renewed after an interval if needed.

Treatment of Male Genital Tuberculosis.

E. Albert, in *Therapie der Gegenwart*, January, denounces castration in the treatment of tuberculosis of the epididymis. It is not such a dangerous condition as to require removal of the affected organ, or else it involves the seminal vesicles and castration is useless. He has had a typical case under observation for ten years, in which the lesions have remained comparatively insignificant and circumscribed. On the other hand, if rectal examination discloses one of the vesicles enlarged and indurated, it is probably already tuberculous. He restricts intervention to incision and evacuation of the nodules. L. Longuet writes to the same effect in the *Revue de Chirurgie* for January, advocating early conservative operation, as saving of tissues as possible, with an experience of thirty cases to support his statements. When the abscess has been evacuated he curettes, cauterizes or sears it with very hot water, or all combined, generally "marsupializing" the cavity and leaving a wick of gauze in it. "The results surpassed expectation in cases thus treated." Others have related their experience recently, showing that castration in numberless instances is powerless to check the spread of the disease.

For Gastroenteritis in Children.

℞. Acidi lactici ..... gr. xv
Aquæ chloroformi—.5 per cent..... ℥iiss
Essence anthemis ..... m. ii
Essence anisi ..... ʒvi

M. Sig. A teaspoonful every two hours. This should be used with a carefully regulated diet.—*Emelen: La Presse Medicale*, October, 1899.

Bubo.

To abort the inflammation in the early stage of this trouble the following has been recommended by Dr. E. Q. Thornton:

℞. Emplastri hydrargyri..... ʒiv
Emplastri plumbi..... ʒiv
Olei terebinthinæ..... ʒi
Ichthyol ..... ʒii

M. Sig. Apply to gland upon new unbleached muslin.

After-Treatment of Internal Hemorrhage.

In the January issue of his journal, *Therapie der Gegenwart*, G. Klemperer calls attention to the necessity of restricting as much as possible the ingestion of fluids after internal hemorrhage, if the bleeding vessel has not been found and tied. If merely closed with a thrombus, no fluids should be allowed, and thirst should be quenched by rinsing out the mouth and by the use of ice; morphin or codein if necessary.

Ichthyol in Joint Affections.

Edlefsen describes his method in *Therap. Monatsheft* for January. He pours 10 drops of a 10 per cent. solution of ichthyolized vasogen on the joint and works it into the skin with energetic massage, terminating with frictions with a little larger amount. He finds this procedure more effective than any other he has ever tried.

Syphilitic Anemia.

℞. Potassii iodidi ..... ʒviiss 30
Ferri. cit. ammoniat ..... ʒi 4
Tinct. nuc. vomic..... ʒii 8
Aquæ destil..... ʒviiss 30
Tinct. cinchonæ comp. q. s. ad..... ʒxxx 120

Two to four teaspoonfuls in water daily.—*Grabower.*

Insufflation of Air in Tuberculous Peritonitis.

Salvolini describes, in the *Clinica Med. Ital.*, 1899, 11, six observations of ascitic tuberculous peritonitis treated and cured by first evacuating the fluid and then insufflating air. He ascribes the benefits of laparotomy in such cases to the admission of air, and enhances this effect by insufflating a quantity.

Toxi-Alimentary Epilepsy.

De Fleury has cured a great many cases of mild epilepsy by suppressing alcohol, moderate dieting or an exclusive milk or milk-vegetable diet and lavages of the stomach, or all combined. He writes to *Revue de Therap.* that he is convinced that in many cases the cause of the epilepsy is toxi-alimentary.

Medicolegal.

Exempted from Taxation.—Under such a provision as that of article 207 of the Louisiana state constitution of 1879, exempting from taxation all buildings and property used exclusively for school purposes, places of religious worship or burial, and all charitable institutions, providing the property so exempted be not used or leased for purposes of private or corporate profit or income, the Supreme Court of Louisiana holds that hospitals or infirmaries whose objects are charity are exempt from taxation, though such institutions take pay from patients who can pay. But under such a provisions, property used for gardening, by a retreat for the insane, the court holds, State vs. Board of Assessors, is not exempt from taxation. On rehearing, December, 1899, the court further holds that, while institutions organized exclusively for charitable purposes are exempt from taxation, provided they are conducted to relieve the worthy, helpless, and infirm, the moment amounts are collected to provide revenue to pay large salaries or wages to favored employees, or to conduct a business for income, the exemption ceases.

Free Transportation to Hospital Implied.—In Gulf, Colorado & Santa Fe Railway Company vs. Harney, the Court of Civil Appeals of Texas affirms a judgment against the company for $300 damages for failure to furnish a section-hand with a pass to a certain hospital and necessary medical attention while he was sick, having been taken suddenly and severely ill with what was designated as cholera morbus. Conceding that the hospital association formed for the benefit of the employees of the railway company and the company were different organizations, yet the court thinks that there was such an intimate relation between them, and that there were such reciprocal obligations and duties provided for, that the obligation to provide free medical service at the hospital for the sick and injured employees of the railway, in consideration of fees deducted monthly from their wages, must necessarily, in many cases, to be effective, include free transportation. At least, as a whole, the court finds itself unable

to say that there was no evidence showing, or tending to show, a contract for such transportation. There was, it may be added, some evidence that it was customary with the company to furnish such transportation, and that if the foreman's letter asking for it for this employee had been received, or the foreman had yielded to his repeated requests to telegraph for it, it would have been furnished in this instance.

Validity of Pure Milk Laws.—Considerations for the health of the citizen, the Supreme Court of Minnesota says, demand and require the passage and enactment of such police regulations as will prevent the maintenance of diseased animals from which the milk-supply of cities is obtained, and the selling and disposing of impure and unwholesome milk. There can be, it continues, no question as to the validity of such laws. They are everywhere upheld. And the right of the legislature to confer upon cities the right and authority to enact them is also upheld. Such laws are not enacted by the state, nor authorized to be enacted by cities or other municipalities, for the purpose of producing a revenue, but solely as police regulations, and in the interest of the public welfare. Nevertheless, in cases where the authority is conferred upon cities, and such authority is silent as to license or inspection fees, the authorities all hold that the right to impose, as incident to the exercise of the power, such reasonable fees as are necessary to defray the legitimate expense of administration, is implied. But chapter 203 of the General Laws of Minnesota of 1895, which authorizes the city council of any city to provide for the inspection of milk and of dairies and of dairy herds kept for the production of milk within its limits, and to issue licenses, "for which no fee shall be charged," for the sale of milk, etc., the court holds, City of St. Paul vs. Peck, does not, by implication or otherwise, confer upon the city council of a city authority to impose an inspection fee for the inspection of dairy herds kept for the production of milk within the city.

Sued for Slander.—A reputable physician and surgeon of many years' practice attempted, with the assistance of another doctor and a medical student, a surgical operation designed to drain the chest of a patient afflicted with pleurisy, whom he had attended for three months. Noticing immediately an unfavorable effect when the chloroform was administered, the attempt was abandoned and efforts made to restore the patient to consciousness, without avail, death resulting. When the alarming symptoms appeared, the wife was sent for, and when she entered the room she wildly accused the doctor of causing her husband's death, and declared he would be made to pay for it. Then, without the knowledge of this doctor and his assistant, she engaged another doctor to make an examination of her husband's body. He insisted that those present at the operation which resulted in death should also be present at the post-mortem. Five surgeons were present, including these two. When they were about to commence the examination, the widow entered the room, and said, "You doctors who were not sent for can get out." The one who had attempted the operation did go out at her invitation and the urgent request of the other doctors, and had a conversation in the kitchen. Both were excited, and probably both very angry. She accused him of malpractice, and he indignantly denied it. He also charged her with perjury, in that, on the preceding day, at the coroner's inquest, she had testified that the day the chloroform was administered her husband was much better, while, the doctor alleged, she had told him before the operation that he was much worse. For this accusation of perjury, she brought suit for slander. Twice has the case been tried, resulting each time in a verdict for the plaintiff. After the first trial, the verdict was set aside by the court, and the judgment on the second trial is reversed by the Supreme Court of Pennsylvania for error in awarding vindictive damages, the verdict being for $1052. The court evidently appreciates the situation, as it propounds the query, could there be circumstances of greater provocation or probability of anger than those preceding the utterance of the slander? for it holds that it was slander, the first statement of the woman referred to by the doctor not having been made under oath so as to constitute perjury under the law. Hence, it does not consider the doctor chargeable with malice, so as to make him liable for "smart money." It says that when he first uttered the slanderous words out of court, at the woman's dwelling, this raised a cause of action in her favor. But it holds, Thompson vs. McCready, that it was error to allow the jury in the second trial to treat as a repetition of the slander that the doctor's defense on the first trial, wherein he did not deny that he was technically guilty, but gave his version as to what occurred, and sought to show extenuating circumstances in mitigation of damages.

Rights of County Board of Health.—Henderson (Ky.) County Board of Health vs. Ward was an action brought against the county judge and others, composing the fiscal court of said county, for a mandatory injunction to compel the defendants to turn over to the plaintiff the control of the county pest-house, and the charge of certain smallpox patients therein; it being alleged that public safety required the change. It appeared that there had been an epidemic of smallpox in the county, and, on the fiscal court undertaking to scale the salaries of the physicians and others employed by the county board of health for the care of patients in the pest-house, the members of the board, and the physicians employed by them, resigned their offices. The fiscal court thereupon appointed a committee of its members to take charge of the smallpox patients until such time as the vacancies in the board should be filled. The committee thereupon employed physicians, nurses, and guards to care for the patients. The epidemic had by this time much abated, and in a few days the greater part of the patients had been discharged, as well as most of those held in custody under suspicion of being infected. The state board of health reappointed the county board, and its members sought to take charge of the pest-house and patients, alleging that some of the patients had been prematurely discharged, and that public safety required the board to have control of the measures adopted for stamping out the epidemic. This being refused, this suit was brought, and the trial court dismissed the petition upon the ground that the pest house was the property of the county, in charge of the fiscal court, which had authority, in case of necessity, to employ physicians, and take charge of patients suffering from epidemic diseases, and that a court of chancery could not compel the representatives of the county to surrender the custody of the county's property. This judgment, the Court of Appeals of Kentucky reverses. It holds that the propriety or impropriety of the resignation of the members of the county board of health "cuts no figure" in this proceeding. Upon their reappointment by the state board, they had the same rights—no more, no less—that they would have had had they been other individuals appointed to the place. It was undoubtedly proper for the fiscal court to take charge of the epidemic during the time there was no local board. But the court of appeals adds that it seems to be undeniable that, under the grant of power to the county board of health to "bring the infected population under prompt and proper treatment during premonitory or other stages of disease," the board had authority to take charge of those suffering from the epidemic or suspected of infection, and this necessarily implied the custody and charge of the pest-house, wherein the patients were confined. In executing this power, it was, of course, necessary to employ physicians, nurses, etc. The board, however, had no power to fix their compensation. That compensation, like the compensation of the members of the board themselves, was left to discretion of the fiscal court—not to its arbitrary discretion, but to the discretion governed by the value of the services. Moreover, while the county board of health is not by statute made a corporation, the court of appeals says that it is created as an agency of the state, and that a similar agency has been held suable as a corporation. It also holds that, while penalties are imposed for failure to observe the regulations and orders of the board, the enforcement of such penalties by the criminal courts is not its only remedy. The board is a high governmental agency, endowed by law with distinct legal rights, and charged with corresponding important duties. In order to the performance of those duties, its rights must be enforced, and the courts of the commonwealth afford the proper means for their enforcement.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical News (N. Y.), March 10.

1.—*Recent Methods in Cardiac Therapeutics by Bath and Exercises. Thos. E. Satterthwaite.
2.—*Milk Inspection by New York Board of Health. Herman Betz.
3.—*Surgery of Epiphyses. Charles L. Scudder.
4.—*Unique Case in Obstetrics. Frederick H. Parker.
5.— Case of Brain Tumor with Exhibition of Specimen. Hugh T. Patrick.
6.—*Observation on a Spirillum Occurring in False Membrane on the Tonsil. Charles F. Craig.

Boston Medical and Surgical Journal, March 8.

7.—*Remarks on Influence of Technique on Results of Closure of Wounds of Abdominal Wall. Charles P. Noble.
8.—*Further Experience with Operative Treatment of Anteflexion. W. L. Burrage.
9.—*Gastro-Intestinal Tract in Nervous Disease. F. Savary Pearce.
10.— Method of Determining Digestive Power of Gastric Juice, as well as Absorptive Power of Stomach. A. E. Austin.
11.— Notes from Neurological Department of Massachusetts General Hospital. S. A. Lord.

New York Medical Journal, March 10.

12.—*Six Cases of Chronic Heart Disease Successfully Treated by the Schott Method. Victor Neesen.
13.—*Direct Examination of Larynx in Children. Max Thorner.
14.—*Some Home-made and Homely Appliances. John Leverett.
15.— Shock and its Surgical Significance. (*Continued.*) John H. Rishmiller.
16.—*Results of Hot-Air Treatment in Rheumatism and Gout. Lewis A. Coffin.
17.—*Value of Inorganic Iron in Anemia. G. Milton Linthicum.
18.—*Report of Case of Double, or Twin Uvula. Lewis S. Somers.
19.—*Perineal Lacerations in Country Practice. H. H. Wilson.

Medical Record (N. Y.), March 10.

20.—*Progress and Drift in Pathology. T. Mitchell Prudden.
21.—*Cystitis Due to the Typhoid Bacillus Introduced by Catheter in a Patient not Having Typhoid Fever. Thomas R. Brown.
22.—*Means of Accounting for Gauze Laparotomy Pads. Victor C. Pedersen.
23.— Historic Notes on Sanatorium Treatment of Alcoholism. Chas. J. Douglas.
24.— Interesting Case of Labor Complicated by Utero-Abdominal Fixation. Joseph M. Rector.
25.— Remarkable Case of Chloral Poisoning. Philip F. Rogers.

Philadelphia Medical Journal, March 10.

26.— Placarding of Houses for Contagious Disease. Arthur V. Meigs.
27.— Diseases of the Arteries. T. Clifford Allbutt.
28.—*Surgical Use of Celluloid Thread. W. W. Keen and Randle C. Rosenberger.
29.—*Case of Gastrotomy for a Foreign Body in the Stomach. George G. Hopkins.
30.— Arteriosclerosis. Joseph Eichberg.
31.— New and Simple Breast Binder for Post-Partum Use. Joseph B. Cooke.
32.— Some Old Certificates of Proficiency in Medicine. Francis R. Packard.
33.— Double Fracture of Clavicle. W. H. Hudson.

Medical Review (St. Louis, Mo.), March 10.

34.—*Some Remarks on Treatment of Perirectal Fistulæ, with Presentation of Specimens. Norvelle W. Sharpe.
35.— Pulse as an Aid in Diagnosis. C. O. Molz.

Cincinnati Lancet-Clinic, March 10.

36.—*Prolapsus of Anus and Rectum. Geo. J. Monroe.
37.—*Syringomyelia. F. W. Langdon.

Medical Fortnightly (St. Louis, Mo.), February 26.

38.—*Carcinoma of Esophagus. Augustus A. Eshner.
39.— Case of Aortitis. Dr. Rendu.
40.— Physiology. A. L. Benedict.

Medical Age (Detroit, Mich.), February 25.

41.— Chronic Suppurative Otitis Media. G. C. Eggers.
42.—*Tuberculin Test for Consumption: Its Wide-Reaching Significance. H. B. Boulden.
43.—*Transmission of Tuberculosis from Cow's Milk. W. T. Parker.

American Journal of Medical Sciences, March.

44.—*Gangrenous Dermatitis Complicating Typhoid Fever. B. Franklin Stahl.
45.—*Conclusions Based on Sixty Cases of Fatal Gastrointestinal Hemorrhage Due to Cirrhosis of Liver. R. B. Preble.
46.—*Histology and Histologic Diagnosis of Adenomyomata of Uterus. John C. Hirst.
47.— Case of Traumatic Varix of Orbit in Which Ligation of the Left Common Carotid Artery was Successfully Performed. Charles A. Oliver.
48.—*Ehrlich Diazo Reaction. James R. Arneill.
49.— Case of Tricuspid and Mitral Stenosis with Adherent Pericardium. T. L. Chadbourne.
50.— Critical Summary of Literature on Retroperitoneal Sarcoma. J. Dutton Steele.

Medical Standard (Chicago), March.

51.— Diseases of Heart: Their Diagnosis and Treatment. Albert Abrams.
52.— Tuberculous Pleurisy. James B. Herrick.
53.— Scarlatina; Its Nature, Causes and Treatment. Marcus P. Hatfield.
54.— Urinary Diagnosis and Treatment, Including the Microscopic and Chemical Examination. J. W. Wainwright.
55.— Urethral Bougies, Catheters and Sounds. Aimé Paul Heineck.
56.—*Mastoid Operation; Report of Cases. Geo. F. Keiper.

American Gynecological and Obstetrical Journal (N.Y.), February.

57.—*Dystocia Due to an Anencephalic Monster; Notes on Case. George M. Boyd.
58.—*Omphalocele: Report of Case. W. Reynolds Wilson.
59.—*Anencephalic Monsters: Report of Case. H. C. Largeman.
60.—*Strict Indications for Obstetric Operations. C. A. Von Ramdohr.
61.—*Conservative Gynecology. G. Betton Massey.
62.—*Notes on Cancer. John C. MacEvitt.

Obstetrics (N. Y.), February.

63.— Hysterectomy in Some Phases of Puerperal Infection. A. Morgan Cartledge.
64.— Fibromatous Pregnant Uterus. Daniel H. Williams.
65.— Treatment of Uncontrollable Vomiting of Pregnancy. George Davenport.

Clinical Review (Chicago), March.

66.— Methods and Results in Abdominal Surgery. Charles W. Oviatt.
67.— Peptic or Gastric Ulcer. Randolph N. Hall.
68.—*Symptomatology and Treatment of Gastric Ulcer. John C. Webster.
69.— Multiple Sclerosis of Spinal Cord. Henry M. Lyman.
70.— Clinical Lecture on Etiology, Pathology, Diagnosis and Treatment of Tumors. A. H. Levings.
71.—*Clinical Lecture on Obstetrics and Gynecology. Denslow Lewis.

Southern California Practitioner (Los Angeles), February.

72.— From Miracles to Medicine. Frank D. Bullard.
73.— Puerperal Sepsis. F. T. Bicknell.
74.— Medical Career at Vienna. W. Jarvis Barlow.
75.— Calcium Chlorid as a Hemostatic. J. Lee Hagadorn.
76.— From Miracles to Medicine. F. A. Seymour.

American Medical Quarterly (N. Y.), January.

77.—*Experiences in Intestinal Surgery. Matthew D. Mann.
78.—*Clinical Contribution to Knowledge of Intussusception of Bowel in Children, with Three Illustrations. E. J. Ill.
79.—*Post-Operative Ventral Hernia. Robert T. Morris.
80.—*Antenatal Factor in Gynecology. John W. Ballantyne.
81.— Prognosis of Eddyism. Henry Reed Hopkins.
82.—*Influence of Clinical Laboratory in Surgery. Willis G. MacDonald.
83.—*Classification of Infectious Diseases. W. H. Thomson.
84.— Clinical Illustrations of Tachycardia and Irritable Heart. Frank Woodbury.
85.— Traumatic Ventral Hernia; Eventrations and Vaginal Hysterectomy; Hernia. Thomas H. Manley.

Colorado Medical Journal (Denver), February.

86.— Suppurative Lesions of the Kidney. A. Stewart Lobingier.
87.— Certain Questions of Medical Ethics. H. B. Whitney.
88.— Etiology of Acute Diffuse Pneumonia. Wm. N. Beggs.
89.— Contusion of Eyeball with Rupture of Iris and Choroid; Recovery of Normal Vision: Dermoid Tumor of Orbit. E. W. Stevens.

New Orleans Medical and Surgical Journal, March.

90.—*Association of Paraldehyde with Chloroform. A New Contribution to Study of Mixed Anesthesia. Cosimo Noto.
91.— History of Smallpox. L. G. LeBeuf.
92.— Treatment of Atrophic Rhinitis. D. Braden Kyle.

Canadian Journal of Medicine and Surgery (Toronto), March.

93.— Address to Association of Executive Health Officers of Ontario. J. J. Cassidy.
94.— Rôle of Primary and Secondary Osteoplastic Surgery in Treatment of Complicated or Compound Fractures of Extremities. Thomas H. Manley.
95.—*Experience in Formaldehyde Disinfection. F. Montizambert.
96.— Systematic Intra-Uterine Exploration after Expulsion of Placenta. John Hunter.

Louisville Monthly Journal of Medicine and Surgery, March.

97.— Surgery of Turbinated Bones. J. A. Stucky.
98.— Stricture of the Anterior Urethra. Harry C. Weber.
99.— Quinsy in Children. Adolph O. Pfingst.
100.— Etiology and Treatment of Locomotor Ataxia: With Report of Cases. John J. Moren.
101.— Hernia. J. Lively Johnson.
102.— Radical Cure of Hemorrhoids Without a General Anesthetic. T. Marion Dunagan.

St. Paul Medical Journal, March.

103,— Ramsey County Medical Society: Its Past, Present and Future. Eduard Boeckmann.
104.— Anesthesia. W. V. Lindsey.
105.—*Fracture and Dislocation of Cervical Vertebræ. Soren P. Rees.
106.— Case of Lymphatic Leucemia Apparently Developing out of Pseudoleucemia. Richard C. Cabot.

Toledo Medical and Surgical Reporter, March.

107.— Treatment of Puerperal Sepsis. M. A. Jerome.
108.— Prophylaxis Versus Therapeutics. Mary E. Law.
109.— Uric Acid Diathesis. J. D. Ely.

Bulletin of Johns Hopkins Hospital (Baltimore), February.

110.— Report on Expedition Sent by Johns Hopkins University to Investigate Prevalent Diseases in Philippines. Simon Flexner and Lewellys F. Barker.
111.— Case of Multiple Gangrene in Malarial Fever. William Osler.
112.—*Benjamin Jesty: A Pre-Jennerian Vaccinator. Thomas McCrae.
113.—*Hemophilia in the Negro. Walter R. Steiner.

Medicine (Chicago), March.

114.—*Operative Treatment of Fracture of Patella: Clinical Lecture. Charles G. Cumston.
115.—*Nature of Neurasthenia: Study of Recent Literature. Rosalie M. Ladova.
116.—*Intestinal Neuroses. Wm. J. Rothwell.
117.—Laryngo-Hyoidectomy for Carcinoma, with Report of a Case. Jacob Frank.
118.—Case of Oculomotor Paresis Following Indirect Violence. C. A. Veasey.
119.—*Prevention of Tuberculosis. Charles J. Whalen.
120.—*Case of Ulcerative Endocarditis, with Aneurysm of Sinus of Valsalva and Case Simulating Ulcerative Endocarditis. A. A. Eshner and G. E. Pfahler.

Southern Medical Journal (La Grange, N. C.), February.

121.—Lactophosphate of Lime in Bone Surgery. Southgate Leigh.
122.—Excess of Uric Acid: Its Manifestations and Treatment with Clinical Reports. J. W. P. Smithwick.
123.—Skin Diseases Due to Dysemia. J. W. P. Smithwick.

Columbus Medical Journal, February.

124.—*Nasal Respiration. Francis W. Blake.
125.—Disinfection of School Rooms and Public Conveyances after Exposure to Infectious Diseases. Frank Warner.
126.—*Pathognomonic Sign of Invasion of Measles. C. C. Ross.
127.—Treatment of Measles. E. W. Woodruff.

Southern Practitioner (Nashville, Tenn.), March.

128.—Diagnosis and Treatment of Fractures of Elbow. Duncan Eve.
129.—Jaundice. W. B. Young.
130.—La Grippe: Its Treatment, with Reports of Cases. J. W. P. Smithwick.

Fort Wayne Medical Journal-Magazine, February.

131.—Indiana in Medicine. A. W. Brayton.
132.—*Neuroses of the Skin. A. W. Brayton.

American Medical Compend (Toledo, Ohio), March.

133.—Prof. Christian Fenger's Clinic. Byron Robinson.
134.—Clinical History and Treatment of Scarlet Fever. O. W. Kimbell.
135.—Collections, When and How to Make. Lucien D. Clark.
136.—Thoughts on Blood-Letting in Diseases of Children. Gustave Aftel.

International Journal of Surgery (N. Y.), March.

137.—Appendicitis: Its Treatment from a Medical and Surgical Standpoint. Thos. P. Scully.
138.—*What May be Accomplished by Electricity in Dysmenorrhea. Augustin H. Goelet.
139.—Treatment of Fractures. W. L. Estes.
140.—Simulated Stricture. Ferd C. Valentine.
141.—Regional Minor Surgery. George G. Van Schaick.
142.—*Abdominal Incision. J. G. Bouvier.
143.—Use of Roentgen Rays in Surgery. Wm. J. Taylor.
144.—Charcot's Joint; Resection: Amputation of Breast for Cancer: Amputation of Leg. Alexander B. Johnson.
145.—Mercurol in Infectious Diseases. Warren W. Alger.
146.—Physical Fitness of Railway Employee from Oculist's and Aurist's Standpoint. Jos. A. White.
147.—Physical Fitness of Railway Employees: Medicolegal Features, L. L. Gilbert.

Medical Times (N. Y.), March.

148.—Nervous System in Pathogenesis of Albuminuria. J. H. Brownlow.
149.—Modern Views of Kinship of Neurotic Diseases and Their Relation to Insane Impulse. J. M. Fort.

AMERICAN.

1. **Recent Method in Cardiac Therapeutics.**—Satterthwaite describes the Nauheim theratment of cardiac disease, with his own ideas on the subject. He points out that Bright's disease is a contraindication to the bath treatment, and in Graves' disease it is of doubtful value. His article is too detailed to be fully abstracted here.

2. **Milk Inspection in New York.**—Betz describes the regular routine of milk inspection in New York City, which appears to be very thorough and complete.

3. **Surgery of Epiphyses.**—Scudder reports four cases of epiphyseal suppuration, with diagrams, illustrating the conditions.

4. **Unique Case in Obstetrics.**—Parker reports the case of a woman in whom apparent pregnancy came to an end, but two years later another went the full course, and preceding it there was a casting off of an undeveloped and partially absorbed fetus, which was probably a relic of the former condition. As the author remarks, it is out of the usual course for a woman to carry a fetus for two years and then go through a normal, healthy gestation to term.

6. **Spirillum on Tonsillar False Membrane.**—Craig describes a spirillum found on a false membrane on the tonsil of a young man. It was thought that the organism might be that described by Miller and Arnt as occurring on the teeth, but examination found none in that situation. The chief points of interest are: "Its large size, its extreme activity, its decolorization by Gram's method of staining, and its occurrence in almost pure cultures in a false membrane of which it formed a considerable part, and in the crypts of the diseased tonsil. The case is of further interest because of the resemblance of the false membrane to that of diphtheria, and as showing the value of a microscopic examination of the exudate in all tonsillar affections."

7. **Technique on Closure of Abdominal Wall.**—Noble describes the successive methods which he has been led to use in suturing up the abdominal wall in laparotomy operations. He has given up silkworm gut for abdominal suturing, and uses catgut exclusively, closing the walls in the following manner: 1. The peritoneum is closed with fine cumol catgut. 2. The aponeurotic sheath of one rectus muscle (the right) is then separated from the muscle by blunt dissection, thus baring the under surface of the aponeurosis. The upper surface of the aponeurotic sheath of the left rectus muscle is then dissected clear of fat, with the object of suturing the under surface of the right aponeurosis upon the upper surface of the opposite aponeurosis. The suturing is then begun by passing the needle, armed with medium chromicized catgut—sterilized by the cumol method—through the aponeurosis of the rectus muscle of the left side of the wound, and thereafter by continuous suturing, closing the rectus muscle until the opposite end of the wound is reached. The needle is then brought from below upward, through the aponeurosis on the left side of the wound. The aponeurotic layer is then closed by passing the needle from below upward through the aponeurosis on the right side; then passing it through the aponeurosis of the left side, as in the Lembert intestinal suture; and again from below upward through the aponeurosis of the right side, and so on till the end of the wound is reached, when a single knot completes the closure of the muscles and fascia. The subcutaneous fat is then closed with a continuous catgut suture in one or more layers, using fine catgut. The skin is next closed by the intracuticular stitch with fine catgut. Scrupulous care is given to these methods, to control all the bleeding vessels. The wound is washed repeatedly with salt solution to prevent blood clots and remove the germs. The method of cleansing the patient and the operator's hands is given in detail and the different steps of operation illustrated. From his results he concludes that celiotomy wounds which can not be closed without drainage and suppuration can be reduced to 2 per cent. or less, and that postoperative ventral hernia can be reduced to a fraction of 1 per cent.

8. **Anteflexion.**—An analysis of his experience in operative treatment of anteflexion leads Burrage to lay down the following rules for guidance in these cases: 1. In anteflexion without ovarian or tubal disease, and free from shortened uterosacral ligaments or posterior adhesions, dilatation, curetting and Dudley's operation or amputation of the cervix, with a preference for the former. 2. In anteflexion with retroposition and shortened uterosacral ligaments or posterior adhesions, and without ovarian or tubal disease, dilatation, curetting and division of the uterosacral ligaments or adhesions by colpotomy and Dudley's operation or amputation of the cervix, with a preference for the former. Amputation of the cervix is a useful operation where the cervix is very long and also where there is extensive erosion of the crown of the cervix. In married women in both of the foregoing classes dilatation and curetting without other operation are sufficient, because pregnancy will usually straighten the uterus and stretch the ligaments and adhesions. Should pregnancy not supervene within a number of months, and should the symptoms persist, another curetting and Dudley's operation, with or without division of the ligaments, may be done. 3. In anteflexion, with or without retroposition, having ovarian or tubal disease, dilatation, curetting, Dudley's operation, and suspensio uteri, the uterosacral ligaments being divided through the abdominal wound if they are shortened and whatever may be necessary done to the ovaries and tubes.

9. **Gastro-intestinal Tracts in Nervous Diseases.**—Four

cases are reported as a basis for this study, which seem to demonstrate to Pearce that we have three classes of the diseases in which the nervous system is more or less influenced by gastro-intestinal disorders usually of a toxic nature: 1. Neurasthenic states, general or in localized areas, where organic changes are present in the nerve-cells. These also disturb the innervation of the gastro-intestinal tracts, leading to dilatation and preservation of the secretions, fermentation of the stomach contents, etc., causing by the products here reabsorbed, still further distress, disturbing the metabolism and aggravating neural disorders. 2. Cases where long-continued gastro-enteritis causes organic change in the mucosa, including the liver and pancreas, thus producing irritation and fermentation, with elaboration of toxins. These are absorbed in part with the hyperacid secretions of the stomach where a constant autointoxication is produced, intoxicating, through the blood, the central nervous system. 3. There must be a mixed class of cases in which neurasthenia so-called or organic nervous diseases are associated, *pari passu*, with disorders of digestion of the functional or organic nature. Admitting the difficulty of determining when 1 and 2 exist, it seems logical that a large number of cases placed in the third category belong by right to the preceding two subdivisions. "The more close histories of our cases we secure, the more exact clinical studies made of symptoms and signs in the individual case, together with careful analyses of the secretions and excretions of the body, thus utilizing the associated import of such phenomena as *indicanuria* for indices, will the better results be obtained in *treatment*. So, also, will such closer observation in the direction noted more surely place the association of neural and somatic diseases out of the less intricate classification we have termed *mixed*. The individual case study as to heredity, diathesis, or temperament, must needs be broadly taken into account. There does seem to be the greatest reason to assume the *acid*, *neutral*, and *alkaline* temperaments, with their predispositions and peculiar immunities, in drawing any conclusions of the case."

12. **Schott Method in Heart Disease.**—Neesen describes the Nauheim treatment in heart disease and reports six cases in detail. The exercises are illustrated by cuts.

13. **Direct Examination of Larynx in Children.**—The difficulties of examining the larynx in children are due partly to age of the patients and their fear of manipulation and lack of personal co-operation; also to the different anatomic conditions of the child and the adult. The height of the mouth is small, and the tongue is often so short it can not be projected. The axis of the larynx is tilted backward, etc. The principles of autoscopy are recapitulated by Thorner, and the methods and its use in children described, with the instruments that are required. He himself experimented with the Kirstein and Escat spatulæ, and found it possible to get a more or less perfect view of the vestibule of the larynx the moment the patient took a deep breath. Sometimes he saw more, but very rarely got a view of the glottis. He considered these methods of direct examination of the larynx as a step forward, though not supplanting the use of the laryngoscope if this is feasible.

14. **Some Home-made Appliances.**—The appliances described by Leverett are a simple paper receptacle for holding soiled dressings in the office, and a substitute for the Kelly pad in obstetric practice. This consists of a circular canvas tube made somewhat like a bicycle tire, with an opening nine inches long on one side, through which one can pass the interior tube of a bicycle tire and inflate it. Then a piece of rubber sheeting a yard square is fastened to the canvas ring by means of ordinary hooks and eyes. This arrangement can be deflated when not in use and the rubber inside tire removed and disinfected and the canvas boiled when necessary.

16. **Hot-Air Treatment in Rheumatism and Gout.**—Coffin reports having experimented with and derived benefit from hot-air treatment in undoubted chronic arthritis. He reports cases.

17. **Value of Inorganic Iron in Anemia.**—Linthicum's article discusses the value of inorganic iron in anemia as an essential agent, and he has no longer a doubt as to its absorbability. The choice of preparation is important. It should not be disturbing to digestion and should be insoluble when administered. The preparation which he has used, and which he finds to meet the conditions, is made from a German formula and has recently been introduced under the trade name of "aromatin" (Dolle). It is a phosphated iron, insoluble in water as well as in the hydrochloric acid of the stomach, suspended in a finely powdered condition with glycerin and rendered aromatized to make it agreeable to taste, forming a milk-white liquid. The liquid is taken folowed by an effervescing tablet solution, containing sufficient sodium phosphate to dissolve the iron in a one-half ounce mixture, with tartaric acid and sodium bicarbonate, so that in the stomach the iron phosphate is gradually acted on by the sodium phosphate, forming the soluble bibasic sodium and iron phosphate which, in its nascent state, is rapidly absorbed. This preparation can not act on the teeth, is non-astringent, and neutral, but its laxative action is decided, therefore it must be used with caution in tubercular cases with a tendency to diarrhea. Six cases are reported, with blood examinations.

18. **Double Uvula.**—Somers reports a case of double uvula, and discusses the condition. He thinks that generally when anomalies are indicated there are family peculiarities which are often ignored or denied by the patient. The condition causes no symptoms nor inconvenience worth mentioning.

19. **Perineal Lacerations in Country Practice.**—Wilson advises against attempts of immediate repair by a country physician, and thinks it better to keep the patient quiet, with perfect cleanliness and asepsis, for three or four weeks, and then have her removed to some hospital where operation can be done by a good surgeon.

20. **Progress and Drift in Pathology.**—This article reviews at length the modern conceptions in pathology. Prudden shows how our ideas of the cells have been enlarged by the later discoveries. We are reaching the point where we are beginning to realize that it is not the bacillus that produces the disease; it is simply the exciting cause. The real factors are to be found in the cells themselves. In regard to immunity he shows we are apt to forget that natural or acquired cell tolerance of poisons may be and certainly is sometimes a matter of cell education. There is no doubt that the conditions exist which we may call, with a reservation, "a specific immunity." But the balance of cell metabolism is so subtle, and the introduction of new substances into the body can so modify the response of the cells that the phrase should not be too readily accepted. We are now learning new facts constantly in regard to bacteria, and in tuberculosis we are beginning to realize the fact that predisposition is of great importance, while we are advised to lay the greatest stress on improving the health and thus increasing bodily resistance, but we do not definitely know the factors which make one predisposed, and the practical value of the care of the sputum and sequestration of the sick is positive and proved and should not be neglected. It is the same in surgery. The surgeons now value the variation in the virulence of germs, but recognize the fact that it does not warrant any lack of attention or care. Taking up the subject of inflammation, Prudden shows how, with modern ideas, we can not do better at present than characterize inflammation, with Adami, "as the series of changes constituting the local manifestations of the attempt at repair of injury." It is really a defensive process. Another subject discussed is the origin of tumors, and the theories that have been advanced by various authors are noticed. In spite of all these changes in ideas and tendencies, the practical phase of pathology still moves on its beaten path. We will continue to look for pathologic micro-organisms and will go on making autopsies for the practitioner. He suggests the enlargement of pathologic work in hospitals, and says that pathologists should be able to follow lines of original research instead of confining themselves to the above task. Finally he remarks that pathology is now passing out of the stage which is marked by simple accumulation of facts. We are beginning to group phenomena as diverse manifesta-

tions of identical forces due to diverse conditions of environment. If one were asked to summarize the most important change in the outlook in this line during the last half century, one might wisely say of disease as has been recently said of animals and plants, that "fifty years ago they were objects to be classified; to the student of to-day they are objects to be explained," and we have called in our sister sciences and enlarged our conception of the forces which sustain and sway the human organism. (See also editorial pages.)

21. **Cystitis Due to Typhoid Bacillus.**—The case described by Brown is that of a woman, who thirty-five years previously had typhoid fever. In an operation for myoma there was necessarily considerable handling of the bladder, and this was followed by cystitis. Examination of the urine revealed the existence of the typhoid bacillus, reacting to all the tests. The author discusses the condition and concludes that the source of infection must have been the catheter during the pelvic operation.

22. **Accounting for Gauze Laparotomy Pads.**—Pedersen describes an arrangement for keeping track of gauze laparotomy pads when used in operations, consisting in having them attached to bars or rings by tally snaps or safety-pins, so that they can not be detached during use.

28. **Celluloid Thread.**—Keen and Rosenberger report experiments with Pagenstecher's celluloid thread, its tensile strength, absorbability, and infectivity, and its behavior with the antiseptic and chemical agents. As compared with catgut and silk it is much cheaper; if on steady use it proves to be as valuable, it will go far to solve the question as to the best material for suture and ligature. Its tensile strength is increased by almost every method of treatment for its sterilization, and its slight elongation on stretching seems to be its only disadvantage.

29. **Foreign Bodies in the Stomach.**—Hopkins reports a case of a young man,19 years old, who got in the habit of swallowing metallic substances as a part of a theatrical performance. His regular program was 200 pins, 8 three-inch wire nails, 10 horseshoe nails, a teaspoonful of carpet tacks, 6 hair pins, and a chain 40¼ inches long, which he held by one end and withdrew after swallowing. On one occasion he lost hold of the chain, which caused him some inconvenience, and he vomited it up. Then his troubles began to brew. Previously he had undoubtedly passed off a large proportion of the articles swallowed. He was operated on and 129 pins, 6 hair pins, 2 horseshoe nails, 11 wire nails, 2 door keys, 2 steel watch chains, 1 brass watch chain and 1 finger ring with a stone in it were removed from the stomach. His recovery was uneventful.

34. **Perirectal Fistula.**—Sharpe reports his experience with a method suggested by Morris, which consists in taking plaster of Paris, well impregnated with salt, and forcing it into the tract after having cleansed and dried the canal. After hardening, the plaster pipe and fistula are dissected out together. One case was tried by this method but did not succeed, the plaster not hardening. He introduced a director into the fistula and dissected out the tube. The steps of the operation are illustrated by diagrams. At present he is inclined in these cases to recommend scrupulous cleanliness, deep tier sutures, either silkworm or catgut chromicized for three weeks, superficial tier sutues, catgut or fine silk preferably. Finally, he cleanses with hot saline or bichlorid solution, then with peroxid, and rubs aristol freely into the operative fluid, and applies a dry dressing.

36. **Prolapsus of Rectum.**—The operation advised for prolapsus of the rectum in infants is simply reduction, with the pad and T bandage. The local treatment which Monroe has found of the most benefit is injection, under the mucous membrane—in adults—of from five to ten drops of carbolic acid about every ten days. Inflammation and sloughing follow. When cicatrization takes place, we have considerable contraction. When one application heals, another one must be used a little distance from the first, but where protrusion is large seven or eight injections may be required. He thinks the prospects of cure not good in the adult; children can always be cured. General treatment, the use of tonics, etc., are usually also required.

37. **Syringomyelia.**—Langdon reports and illustrates a case of this disorder in a young woman. He sums up its treatment as follows: rest, nutritional measures, and prevention of complications, such as bed-sores, cystitis and sepsis. The medicinal treatment consists in the administration of arsenic, which has some repute in limiting the growth of tissues of the class to which glioma belongs: and in drugs to relieve pain and promote the comfort of the patient generally.

38.—See abstract in THE JOURNAL of January 20, p. 167.

42. **Tuberculin Test.**—Boulden believes the tuberculin test is most efficient and certain in the diagnosis of tuberculosis in cattle. He holds that bovine tuberculosis may infect man, hence the importance of this agent.

43. **Tuberculosis from Milk.**—Parker deprecates the idea that tuberculosis is not likely to be conveyed through milk. He believes that the frequency of the disease in children is to be interpreted this way.

44.—This paper is noticed editorially in this issue of THE JOURNAL.

45.—Ibid.

46. **Adenomyomata of Uterus.**—This carefully reported case, observed in Landau's clinic at Berlin, has by its study led Hirst to deduce the following: 1. In the uterus of an adult were found embryonal epithelial inclusions from the mucous membrane of the uterine body (Mueller's duct), situated in the peripheral subserous layer of the myometrium. 2. Isolated glands and cysts, included in the uterine wall and originating from the mucous membrane, are provided with a cytogenic tissue sheath, but not invariably. 3. This cytogenic tissue is found accompanying remains of the Wolffian body only when adenomatous proliferation is present in them, and this applies both when it occurs at the normal site of the paroöphoron and in transposed portions of it. 4. Adenomata with glands and cysts in scattered arrangement are to be considered as from the mucous membrane as soon as they are provided with cytogenic tissue sheaths around the glands. 5. The epithelial ducts in the uterine and tubal wall, which have heretofore been characterized as aberrant canals from the Wolffian body, have not been proven as such, and are of uncharacteristic anatomic structure. For this diagnosis we must have specific figures of the paroöphoron or connection with Gærtner's duct. 6. Formation of subserous adenomyomata from these incorporated glands of the uterine mucous membrane is possible.

48. **Ehrlich Diazo Reaction.**—First noticing the possible errors of this test, Arneill gives the formula recommended by Ehrlich, and points out the features considered as important. The formation of a red zone is an indispensable part of the true Ehrlich diazo reaction, and it is essential that on shaking the foam takes on a pink color. Ehrlich also considered the separation of a greenish-black or violet black precipitate, forming a layer on the surface of the light-colored sediment when the tube has been allowed to stand for twenty-four hours as also of importance. The cause of the reaction is not known, but all authors agree that it is not dependent on fever. That it is dependent on substances excreted rather than temperature is well illustrated by the fact that in croupous pneumonia with high temperature it is rarely present. In nearly all cases there is evidence of marked intoxication of some sort, bordering on the typhoid state. Arneill gives results of critical analysis of the diazo test made in the clinic of Dr. George Dock, during the past six years, as a sequel to the report of Dr. Warthin, published in 1893. The number of cases approaches 800, while the number of tests runs up into the thousands. In twenty-two cases of typhoid fever, the diazo reaction was present in nineteen, and in about one-half the cases of tuberculosis. He believes that duration of reaction corresponds to the severity and length of the fever, and in cases of the acute form of tuberculosis, where the reaction is continuous, a grave prognosis should be made. The other forms of disease in which he has diagnosed by this test are given, such as measles, typhus fever, erysipelas, and he claims that statistics of other investigators who have used

the test correctly are overwhelmingly convincing as to its value in diagnosticating and prognosticating typhoid fever, and in the prognosis of disease such as pneumonia, diphtheria, septicemia, and especially tuberculosis.

56.—See abstract in THE JOURNAL of Oct. 14, 1899, p. 977.

57.—Ibid., Feb. 3, p. 298.

58.—Ibid.

59.—Ibid.

60. **Indications for Obstetric Operations.**—Von Ramdohr criticises the text-books as uselessly burdening the minds of the students with unimportant details while the important matters are not sufficiently emphasized. He thinks that we should not attempt to make general rules for every type in a specialist's meeting, but should differentiate to whom we are talking, and insist on that fact. Incautious remarks dropped in a debate are often taken up in good faith by the profession in general, and theoretic precepts carried out in good faith by unqualified followers. He thinks also that undergraduates should only have strict general indications given them to arrive at a result instead of giving them vague and devious roads which they can not properly appreciate. He points out that in many cases the experienced can safely perform such operations as forceps delivery, symphyseotomy, Cesarian section, etc., which are not always so clearly indicated for the less expert. He puts all indications under one rule: "Whenever mother and child are threatened with danger, interference is necessary and indicated." "That means, whenever the fetal heart-sounds are either increased by twenty or reduced by twenty a minute, whenever meconium appears in head presentations, whenever a head swelling loses its tenseness, this shows that it is time for it to be extracted. On the other hand, the mother shows up by an increasing temperature, by a heightening pulse, by increasing respiration, or by hemorrhage or convulsions that she needs to be delivered. Included are also non-normal proportions between the maternal passages and the fœtus, and mal-presentations and positions." The real point of his article is that the teaching of strict indications lies at the bottom of the whole teaching of obstetric operations.

61. **Conservative Gynecology.**—The use of electricity for the benefit of ovarian and uterine diseases, prolapse or the relaxation of the uterine supports is the chief point in Massey's paper. He condemns the use of the sharp curette, steel dilator, pessaries, etc.

62. **Cancer.**—The summary of MacEvitt's article is given in the following: It is doubtful if cancer of the uterus is more prevalent at the present time than in past periods, though its recognition is more general. Too little attention is paid to its genesis. Its early recognition is difficult and can only be discovered through the use of the microscope. It is generally in an advanced stage when referred to the surgeon for treatment. A clinical division for such process should be adopted. The following division will meet all practical requirements: Primary or stage of incipiency. Secondary or stage of infiltration. Tertiary or stage of lymphatic infection. Quartenary or stage of adnexal and systemic infection. The selection of surgical measures depends on the stage of the disease. The high amputation by galvanocautery is the best method when the infection is confined to the cervix. When the disease is confined to the uterus or with but slight encroachment beyond, hysterectomy is called for; when all the pelvic organs are involved it is better to adopt palliative measures only.

68. **Gastric Ulcer.**—The symptomatology and treatment of gastric ulcer are described by Webster. He advises rest, confinement to bed in serious attacks, and care as to diet. In a majority of cases milk diet is preferable, but where this does not agree others may be substituted. Indigestible foods of all kinds should be forbidden. For relief of pain he first speaks of bismuth, which may be combined with morphin if necessary, and he gives it in 10-grain doses every four to six hours, according to the case. Other drugs are nitrate of silver and tincture of iodin, which have also been reported as of value, also papain and cannabis indica. The use of bicarbonates of soda and magnesia and lime water should be limited to where there is flatulency and fermentation. Lavage is useful in old cases. Relief of vomiting may be had by the use of ice frequently repeated in small quantities, and also morphin and rest of the stomach. Hemorrhage is best treated by cold and astringents. For constipation mercurials are considered injurious. Castor-oil is as good as anything where it can be tolerated. Saline laxatives, especially sulphate of magnesia, are useful. An occasional enema is always advisable, and where magnesia is not retained it is better to depend on enemata for a while. In cases of perforation with spreading peritonitis, the need of operation is manifest. In other cases where the symptoms are less marked the diagnosis may be difficult. The majority of authors insist on absolute rest and nutrient enemata, but Blume depends on opium, morphin, and iced milk every fifteen to thirty minutes. The disease often has intermissions followed by aggravations. In the midst of apparent improvement hemorrhages may occur and relapses are always imminent.

71. **Obstetric Manipulation.**—Lewis demonstrates Hegar's sign in early pregnancy, and discusses the diagnosis. In medicolegal practice the fetal heart-beat is the only certain sign. At other times the diagnosis is presumptive only. The treatment of delayed labor is considered, and at least one vaginal examination is advised to determine abnormalities, prolapse of cord, etc., unless a preliminary examination has been made. The treatment of shoulder presentations necessitates version, unless a constriction ring predisposes to rupture. Extraction of the after-coming head is made by Smellie's method, and forcible expression is condemned. The necessity of delivering a living child who can continue to live is emphasized. Under other conditions symphseotomy and Cesarian section must be considered if the child is alive, and some mutilating operation must be done if it is dead.

77. **Intestinal Surgery.**—Mann reports 29 cases of operations on the intestine, with 9 deaths; 23 were primary operations with 6 deaths, and 6 secondary with 3 fatal, the fatality being increased by the shock of the previous serious procedure and great length of double operation. Several of the cases are of interest, one of double resection by Dr. R. Park and the author. Several methods were used for end-to-end anastomosis, but the author especially favors enterorrhaphy with the silk suture, Lembert's stitch, a continuous suture interrupted after each four or five stitches, the loop used for tying being cut off and the suture continued with the same thread as long as it lasted. In each instance a double row in fifteen minutes. Maunsell's method was used but once, of sutures, and resection has been accomplished by this method but was very satisfactory. The Murphy button was used three times in joining the sigmoid to the rectum, and once in joining the small intestine to the large. He thinks its value would be chiefly in operations deep in the pelvis where suturing is exceedingly difficult.

78. **Intussusception.**—Five cases of intussusception with operation are reported by Ill, with photographs of some of the patients. The author thinks that surgery is the only satisfactory method of dealing with these cases, and should immediately follow the diagnosis. The prognosis will depend on the length of time that has elapsed, length of operation, the observance of asepsis, freedom from injuries to the bowel and extent of invagination, and to some extent on location of the lesion. It is very difficult, for example, to draw the ilium from its imprisonment by the ileocecal valve.

79. **Post-Operative Ventral Hernia.**—The common cause of post-operative ventral hernia is improper suturing of the structures of the abdominal wall. It is better to leave the parts as near as possible in the condition in which they were found, and Morris gives details of suturing. The adipose layer of the abdominal wall requires no suturing whatever. Another common cause of hernia is leaving a large drainage opening after operation in septic cases, and he condemns the use of gauze drainage and considers drainage usually unnecessary. Still another cause is too early removal of sutures. He thinks it is best to always use no other material for buried sutures than catgut, as others are liable to give trouble later. Post-operative ventral hernia is rapidly curable according to his experience, if one follows the simple plan of dissecting the structures separately in such a way that they can be separately sutured.

80. **Antenatal Factor in Gynecology.**—Ballantyne calls

attention to this factor in addition to traumatism and infection. In morbid anatomy it is very evident. In symptomatology it should be considered, as there may be abnormal congenital structures. Its relation to etiology is a necessary inference, and one can usually see how congenital deformities may lead to errors in diagnosis and prognosis as well as in therapy. In jurisprudence it is also of importance, for some conditions which might be attributed to parturition, such as split cervix, etc., may be congenital. This possible factor must be remembered in this connection, and one must not be too positive in making statements in the witness-box.

82. **The Clinical Laboratory in Surgery.**—After noticing the value of the clinical laboratory to surgery in many ways, both in bacteriologic and chemical investigations, MacDonald calls attention to the importance of laboratory training for the surgeon. He thinks the successful surgeon should have had five years of bedside experience in general diseases, three years of laboratory training in physiology, chemistry, anatomy, comparative pathology, bacteriology, operative surgery on the cadaver, blood analysis, and finally a year of actual work at the operating-table. The modern surgeon must be able to direct if not conduct each department of investigation.

83. **Classification of Infectious Diseases.**—Thomson points out the modes of communication of infectious diseases, and says the public needs a number of authoritive statements defining the different classes. He sums up in the following: All the diseases caused by the presence of micro-organisms in the body are infectious, and therefore communicable directly as by simple proximity, and therefore contagious—chief preventative, isolation; not directly, but by carriers, and not contagious—chief prevention through dealing with the medium by which they are carried; communicable by inoculation—chief prevention by dealing with the thing which inoculates. He believes that publication of a list of disorders of each class would serve a useful purpose in relieving panicky fears and giving correct ideas.

90. **Paraldehyde with Chloroform.**—After noticing the various adjuvants of chloroform which have been suggested or tried, and reporting experiments of his own, Cosimo Noto calls attention to the use of paraldehyde for this purpose, reporting a number of experiments showing its value. He thinks the association of this drug with chloroform appears to be superior to all other methods of mixed anesthesia up to this time. By administering paraldehyde before inhalation of chloroform, we first of all remove the element of expectation which is sometimes of great advantage, and the period of chloroform excitement is suppressed, as is also the vomiting. Paraldehyde does not at all affect the heart, which is an important point. The dose of chloroform to be used is also much lessened.

95.—See abstract in THE JOURNAL of Sept. 2, 1899, p. 621.

105. **Fracture of Cervical Vertebrae.**—Rees reports a case, with post-mortem, of cervical dislocation with fracture of the sixth vertebra, and discusses the subject generally. He emphasizes the necessity of immediate action where operation is advisable, and the importance of handling the patient so that the manipulations are limited to act directly on the region of injury.

112. **Pre-Jennerian Vaccinator.**—McCrae gives an account of Benjamin Jesty, an English farmer, who seems to have anticipated Jenner in observation of the immunity produced by cow-pox to the infection of variola. He practiced vaccination in his own family, but did not publish nor introduce the process to the world. Jenner's work was independent.

113. **Hemophilia in the Negro.**—In the literature of this subject there has been heretofore but one case reported in the negro. But Steiner reports an interesting history of a case with full family tree showing four generations of hemophilia with its usual characteristics.

114. **Fracture of the Patella.**—Cumston's article is illustrated with cuts showing the different methods of treating patellar fracture. Results obtained by suturing are, in most instances, more than satisfactory, but he gives special cautions as to asepsis in this operation, involving as it does a serous cavity.

115.—See abstract in THE JOURNAL of February 10, p. 363.

116. **Intestinal Neuroses.**—The disorders noticed by Rothwell are peristaltic restlessness, rumbling, gurgling, croaking, or squeaking in the bowels which is very annoying, nervous diarrhea, concurrent spasms of round and long muscular fibers, colic, and anesthesia of the rectum. He thinks that hyperesthesia of the intestinal nerves may account for many disagreeable sensations complained of by neurotics. Enteralgia is a distressing disorder, and its unilateral character differentiates it from inflammatory affections and also from renal colic and the dermalgias described. Still another disorder is mucous colic, which is a very obstinate and troublesome one. These conditions are to be met by aiming to modify the underlying neuropathic states. In peristaltic restlessness, in addition to the general treatment, arsenic and methylene blue are especially valuable; in enterospasm, sedatives and antispasmodics must take the place of purgatives; in enteralgia, codein and morphin, and the best results will be obtained by suppositories of the aqueous extract of opium in doses of gr. ss. For mucous colic the indications are: 1, to evacuate the bowels by general laxatives; 2, to relieve pain without narcotics; 3, to prevent fermentation; 4, to counteract a possible autointoxication. To meet the first indication, olive-oil or castor-oil is recommended; to relieve pain, extract of cannabis indica, gr. ¼ in pill, three times daily; as disinfectants, salol, resorcin, and salicylate of bismuth.

119. **Prevention of Tuberculosis.**—Whalen does not believe in the dangers of milk, at least to the extent which is now agitated, but that public education by furnishing families with such educational matter on the subject is advisable. He thinks the establishment of a hospital for the incipient cases among the poor would be a great advantage.

120.—See abstract in THE JOURNAL of Oct. 14, 1899, p. 983.

124. **Nasal Respiration.**—The points which Blake would emphasize are that nasal respiration is the normal kind and that proper physical and mental development largely depends on it; that nasal reflexes should receive due attention and that obstruction of the nasal respiration is almost always adventitious and not due to congenital defect, hence an obvious pathologic cause should be sought. Relief may often be afforded by simple means, but radical measures are justifiable if they seem required.

126. **Koplik Sign.**—Rose considers Koplik's sign the most valuable and the possibility of early diagnosis by it especially so in differentiating measles from other resembling diseases.

132. **Neuroses of the Skin.**—The principle theme of Brayton's article is the sensory skin neuroses, of which pruritus is the type, due to various conditions which give rise to neurotic disorder. He does not give much encouragement as to their cure, but insists on thoroughness of study and diagnosis in every case.

138. **Electricity in Dysmenorrhea.**—Goelet believes that electricity intelligently applied will relieve dysmenorrhea due to stenosis, obstruction or flexion. He thinks that for this purpose, in the galvanic applications producing moderate negative electrolysis, the strength of the current should not exceed 10 milliamperes, and the duration of the applications should be three or four minutes. The frequency may be every second day for the first or second week, every third during the third week, cessation during menstruation and once or twice a week during the intermenstrual period. If complete relief is obtained at this stage, one application may be made immediately preceding the next two succeeding periods. The electrode may be inserted with a speculum or along the index finger, and strict asepsis must be observed. Following each of these galvanic applications the pelvis is submitted to faradization with the current from the long, fine, wire coil, by means of the bipolar electrode in the vagina, for the purpose of overcoming pelvic hyperemia which constantly accompanies this form of dysmenorrhea. These applications should be continued for ten or fifteen minutes. Dysmenorrhea due to chronic hyperemia of the endometrium and defective drainage—so-called catarrhal endometritis—is curable by the same plan of treatment; this may, however, need to be more prolonged. In conjunction with the treatment, conditions tending to produce pelvic hyperemia, such as inactive liver, should receive attention. He also uses this method in dysmenorrhea due to

ovaritis and salpingitis. That due to anemia and impaired nutrition does not as a rule require local applications, but yields to vigorous application of static electricity, consisting of sparks to the spine, especially the sacrum, and to the hypogastrium, repeated daily or every two days, and the application of stimulating static breeze applied generally. From two to three months will be required to effect a cure, discontinuing application during the period and using tonics, etc. Dysmenorrhea due to imperfect development must be taken early, and he thinks stimulation of the uterus, and through it the ovaries in these cases, with static electricity, the correct treatment.

142. **Abdominal Incision.**—Bouvier describes Kuestner's incision, which he thinks is an ideal one where the abdominal walls are thin and the size of the cut limited to one inch or so. He prepares the patient in the usual manner, then makes a vertical incision through the skin and aponeurosis of the external oblique muscle, 1½ inches to the left of the median line. At each extremity of this incision he makes another, at right angles, to a point one-half inch to the right of the median line; dissecting up the intervening skin and aponeurosis to the limit of the transverse incisions. A cut is then made in the median line through the remaining muscles and peritoneum, which gives an abdominal wall practically the thickness of the internal oblique, and transversalis muscles, fascia and peritoneum. In closing the deep wound, if the peritoneum is to be included with the deep muscles, absorbable suture material should be used; if not, silk will give the best results, which, with this incision, are to be obtained in the operation in the inguinal or iliac regions. The deep incision should be the opposite to that known as McBurney's, i. e., instead of crossing the imaginary line from the anterior superior spine of the ilium to the umbilicus, it should be parallel to it, and in the direction of the fibers of the internal oblique muscle. With such an incision hernia and secondary wound infection is almost an impossibility. The operation requires a little longer time to perform, but to the careful surgeon the difference in results will more than repay for the extra time.

FOREIGN.

British Medical Journal, March 3.

Clinical Lecture on Cases of Myasthenia Gravis Pseudoparalytica. THOMAS BUZZARD.—Two cases of the disease first noticed by Wilks, and characterized by increasing muscular weakness with later spinal and bulbar symptoms, are described by Buzzard. One of the most notable characteristics is the so-called "myasthenic reaction," which consists in a rapid loss of electromuscular contractility, to be recovered again in a very short time by rest. In these cases the behavior of the knee-jerks was remarkable, as the reflex was produced continually on tapping the tendon, without any diminution in vigor of the response. The occurrence of myasthenic reaction in both cases is considered by Buzzard to prove their identity, though many cases reported are probably of different pathogenic origins. He thinks that cases of multiple neuritis affecting especially the motor nerves have been confused with this disease, and it is possible that there are various diseases that merge into each other. The myasthenic cases usually show the following features: Symptoms of bulbar paralysis not usually very strongly marked, with ptosis and sometimes ophthalmoplegia, weakness, and rapid fatigability of the muscles of the trunk and extremities as well as of those innervated from the bulb; absence of muscular atrophy and fibrillary tremors; normal excitability by induced currents at the moment of application, provided that the muscle is not already fatigued by voluntary exertion, rapid decrease and disappearance of contractility under application of the electric currents, with restored excitability after a very short rest; the occurrence of remissions and exacerbations; almost complete absence of sensory troubles; immunity of the functions of bladder and rectum; sensorium unaffected; negative results of necropsy. Oppenheim points out that in polioencephalomyelitis the symptoms of "myasthenic reaction," remissions and fatigue phenomena are all absent. Neither sex nor age appear to have any influence, apparently also the symptoms may originate in different parts, and by no means necessarily in the bulbar district. It is impossible to say anything definite on the essential nature of the disease, and the toxin is not to be discovered, but probably motor cells of the cortex are the seat of the morbid processes. With our ignorance of the pathogeny there is little to be said about treatment. Thyroid seemed to do good in one of these two cases; apparently the best results are obtained by rest, removal from disturbing surroundings and good food. The application of induced currents to the muscles of deglutition and respiration is to be deprecated, but there appears to be no objection to galvanization of the nerve-centers. Experience has also shown that feeding by tube is not advisable, as fatalities have occurred in this way.

Experiments to Determine Efficacy of Different Constituents of Haffkine's Plague Prophylactic. C. BALFOUR STEWART.—From experiments on rabbits, Stewart is not inclined to favor the claim of Lustig and Galeotti that their nucleo-proteid in solution is the active element in Haffkine's serum. His experiments were made in slightly acid broth, which would not dissolve the nucleo-proteid. The cultures also were young, and the microbes probably living, so that they were not in condition to give up their nucleo-proteid. His experiments rather appear to confirm Haffkine's theory that the supernatant fluid, by virtue of the contained toxins, conferred power to withstand the plague toxins, for which reason he preferred to keep the supernatant fluid in his prophylactic, not depending entirely on the deposit thrown down.

A Contribution to Study of Pituary Body. W. A. OSBORNE AND SWALE VINCENT.—The authors' investigations on the pituitary body mainly confirm the previous one of Schaefer and Vincent. They find that saline decoction of pituitary body of bony fishes produces effects identical with those obtained from the mammalian glands, which renders it probable that these organs are functionally identical throughout the vertebrate kingdom. The infundibular portion of the pituitary body being presumably nervous, the question arises whether the effects can not be produced by similar extracts of nervous tissues generally. The authors have given considerable attention to this, and their conclusions are that all parts of the nervous system, but especially the gray matter of the brain, cause depressor effects which are not abolished by section of both vagi. They do not think that this is due to cholin. This, however, does not decide that the depressor effect of the pituitary is due to the presence of nervous matter. There is a distinct difference in the nature of the curve obtained by the two substances. Their extracts were prepared from the infundibular portion of the pituitary of the ox, since the hypophysis proper is inactive. Even by the naked eye it is seen that the infundibulum of the ox is divided into two distinct parts, an inner and outer; they experimented with the two portions separately and found the extract from the central part more active than that from the peripheral. They believe that the effects are entirely due to the inner reddish core, the outer part being glandular. They have been able to find few undoubted nerve-cells in the infundibular part of the pituitary.

The Lancet, March 3.

Two Lectures on Rabies. JOHN ROSE BRADFORD.—In this first lecture Bradford reviews the history of rabies, more especially down to Pasteur's investigation. Since 1885 our knowledge of its nature has not greatly progressed. The identity of its toxin has not been established, though there are arguments in favor of the disease being of microbic origin. It is limited to mammals and birds, and it is known in the latter through experimentation; the carnivora are especially affected. It is common in dogs and cats, less so in wolves and foxes, and in other animals it is rare, but most so in the pig, which fact he attributes to the latter's layer of fat preventing inoculation. Another interesting point is that it is endemic in certain localities and hard to eradicate. There are certain countries in which it is unknown, among these Australia and Norway. The disease is usually communicated through a bite, and the proportion of those bitten that suffer from it is not large, probably about 16 per cent., according to the most apparently correct estimates, those of Leblanc. There is some evidence that it may be contracted through licking, and laboratory experiments have shown that it may be through the mucous membrane. Near the nerve-centers the inoculation is

of greater danger. The well-known experiments of Roux show that when the spinal cord was divided and the inoculation made below the point of division, the greater quantity of virus accumulated in the divided segment. The virus has a peculiar distribution in the tissues. It is present in the nervous system but not in the blood, and apparently not in the bulk of the tissues. It is not found in the liver or spleen, but is found in other secretory and closed glands, such as the salivary, the pancreas, the lachrymal, suprarenal and mammary glands. On exposure to air or sunlight it loses its virulence in fourteen hours, but in water or underground it may last for many days. The question of incubation is important, and Bradford does not believe that it extends beyond six months. The minimum period is twenty days, and sixty is usually the maximum. In diagnosis it is of great importance to isolate the dog if possible, and to keep it alive to be sure that it is suffering from rabies. In the next lecture he will consider the details of diagnosis.

Anatomy and Pathology of Rarer Forms of Hernia. B. G. A. MOYNIHAN.—Hernia of the bladder is still regarded as a sort of curiosity, but Moynihan seems to think that it is less rare than is supposed, as in many cases it is not discovered even by operation. The more accurate the stripping of the sac quite up to the epigastric artery, the more likely will cystocele, especially in its earlier stages, be discovered. It is more general in the aged and enfeebled, but in young persons or children it is rare. Three varieties are known: 1. Intraperitoneal cystocele, where there is a complete hernial sac into which the portion of the bladder completely covered by peritoneum descends. Only about 6 per cent. of all the cases are of this form. 2. Paraperitoneal cystocele, in which form the bladder lies on the inner side of the sac in such a way that the peritoneum of the sac's inner walls is a serous covering of the outer wall of the bladder. The rest of the bladder outside of the abdomen has no peritoneal covering. The viscus, therefore, is outside of the sac; it is not a part of the contents of the hernia. 3. Extraperitoneal cystocele is a rare form. All are of the direct variety. Cases of this hernia are commonly spoken of as of a diverticulum, but recent investigations show that really the apparent narrowing neck is deceptive. The etiology has been a puzzle, but Moynihan sums up the causes as follows: 1. There must be a condition of permanent vesical distention. As a result of this enlargement the normal anatomic relations of the bladder undergo considerable modification. The increase is not merely in the vertical direction, but also in the transverse. The bladder is therefore brought into relationship with the inguinal fossæ. 2. There must be a condition of motor insufficiency of the bladder. The wall is thinned in certainly the great majority of cases. Salistchew gives it as his experience that the bladder wall may be not only thinned but actually thickened and the muscular fibers considerably hypertrophied. A glance through the recorded cases, however, is amply sufficient to show that the atrophy of the muscular coat is comparably more frequent. 3. There must be a condition of laxity of the abdominal wall, especially in the lower half, or of undue patency of the inguinal canal and unusual size of the abdominal rings. A bulging of the lower abdominal wall is very common in cases of hernia occurring in middle or old age. It has been described and illustrated by Glenard, Macready, and others. 4. As supplementary to these three there is also necessary the increase of intra-abdominal pressure, the "effort" on which Nélaton in 1857 was the first to lay definite emphasis. The cystocele is both primary and secondary. The primary ones result from two conditions: 1. Where the bladder through persistent overdistension associated with muscular atony, laxity of the abdominal wall, and "effort," is forced into the inguinal canal. 2. Where the traction or the fixation of a lipoma causes the descent of the organ. Secondary cystoceles result from the traction of pre-existing hernia or protrusion of the peritoneum-clad portion of the lax-distended bladder into the hernial sac of old standing. The symptoms and signs are reviewed, the fluid contents of the hernia, its alteration and size corresponding to micturition, interrupted micturition, and pressure on the sac causing a desire to urinate. Sometimes the catheter can be passed into the hernia. It is rarely strangulated, though symptoms resembling strangulation may appear. It may be confused with hydrocele, from which it differs in being opaque and reducible, and the other symptoms of fluid in the hernial sac may cause confusion. It is impossible for a patient to wear a truss. In these cases the operative treatment is the best resource. The danger is chiefly of wounding the bladder, which makes it necessary to use special care to recognize the viscus. After operation it will probably be necessary for the patient to wear a truss.

Relation of Blood to Lymphatic Vessels. CECIL H. LEAF.—The author calls attention to the communications between the blood-vessels and lymphatics, and especially to the following points: 1. The azygos veins normally receive a great many lymphatic vessels. 2. Some of the smaller arteries in the thoracic region open directly into the large lymphatic vessels; some of the smaller veins open directly into the large lymphatic trunks; and these two facts help to quicken the movements of the lymph. 3. Direct communications are found to exist between arteries, lymphatic vessels, and veins. 4. The communications between veins and lymphatic vessels have been observed to take place in a great many regions in the body. 5. Owing to the presence of these communications the cells of a malignant growth can pass either from the lymphatics into the veins, or vice versa, and hence not only in the sarcomata but also in the carcinomata the veins, as well as the lymphatics, should always be regarded as channels along which the cells may at any moment be conveyed to distant parts of the body.

Revista Med Del Uruguay (Montevideo), January.

Tuberculosis in Uruguay. J. DE SALTERAIN.—The mortality from pulmonary tuberculosis in Uruguay, from 1890 to 1897, was 1.27 per 1000 inhabitants. The proportion of deaths from pulmonary tuberculosis to the deaths from all causes was 7.58 per cent. The highest mortality from tuberculosis is along the river, and that in the province of Montevideo—11.76 per cent.—was higher than in the province of Buenos Ayres from 1888 to 1898—8.70. The mortality from this cause in Montevideo was 12.24 per cent. Compulsory disinfection is advocated. Tuberculosis was only noted in 0.19 per 1000 of the cattle examined at the slaughter-houses.

Annales de la Societe Medico-Chirurgicale de Liege, xxxviii, 12.

Electromassage of Prostate. ALBERT HOGGE.—A thin disc of platinum is mounted on a rubber cap fitting over the forefinger like the finger of a glove. The platinum disc is covered with a disc of chamois leather and has a wire conveying to it a current of 15 milliamperes. The positive electrode is applied in the urethra or on the perineum, and held by the subject, while with the free hand the physician exerts pressure on the hypogastrium at the same time that he is massaging the prostate through the rectum with the electric device. The rubber cap is lubricated with salve or glycerin. Ninety-two cases are tabulated for comparison, showing the benefits of this electromassage in chronic prostatitis, hypertrophy of the prostate and vesical prostatism in seventeen cases thus treated.

Bulletin de l'Academie de Medecine (Paris), February 20.

Experimental Capsular Hemianesthesia. FRANCOIS-FRANK.—The importance of experimental research in the study of pathologic cerebral physiology is demonstrated once more in the new facts presented in this communication. The method used was bipolar electrolysis, which is free from the errors of other methods, and permitted the long survival of the animals. With it the fact was established that section of the posterior segment of the internal capsule does not suppress the sensibility on the opposite side of the body. Total hemianesthesia only exists in the first few days after operation, and is a disturbance in inhibition, not of deficit. The real deficit disturbances do not appear until the inhibiting effect has passed away; in the dog, between the fourth and eighth days. The chief manifestations of the sensory-motor disturbances then are an incomplete motor paralysis with loss of the sense of the position of the members; hemianesthesia to the touch, suppression of half of the visual field on the opposite side, and chief of all, complete retention of sensibility to pain by the skin, with loss of the power of localizing this sensation.

Disinfection with Measles. E. VALLIN.—The necessity of careful compulsory disinfection in case of measles is urged by Vallin, who states that the number of deaths from this dis-

ease has nearly doubled in Paris during the past five years, and that it causes nearly twice as many as typhoid fever and diphtheria. It is not the measles itself that leads to this high mortality, but the opportunity afforded streptococci and other bacteria to invade the tissues of the air-passages, by the lesions in the mucous lining caused by the affection. Vallin considers disinfection necessary to destroy these secondary germs in the environment, not only for the patient himself, but for those who have taken the measles from him, to prevent complications later. He would add it to the list of diseases requiring notification, and observes that when people once realize the necessity of disinfection, they are glad to have it done. During 1899 there were 12,000 spontaneously demanded or accepted disinfections on account of tuberculosis, which shows that the antituberculosis propaganda is beginning to bear fruit.

Psoriasis Cured with Thyroid Extract. PETRINI.—Commencing with two capsules a day, the patient with generalized psoriasis was taking ten a day in three months, when he was discharged cured. No unfavorable effects from the treatment were noted.

Bulletin de la Soc. Med. des Hop. de Paris, February 15 and 22.

Clinical Characteristics of Pains with Aneurysms. H. HUCHARD.—In a number of cases Huchard was able to discover a hitherto unsuspected thoracic aneurysm by peculiar pains at a distance, suggesting rebellious intercostal neuralgia. They are usually situated at the back of the thorax, four or five finger-widths from the spine, at the ninth or tenth intercostal space. They increase with every change of attitude, when the subject stands up or when he reclines, but are relieved when seated, the body bent slightly forward. Radiography is always indicated in rebellious thoraco-brachial neuralgias, as an aneurysm or incipient Pott's disease may be revealed by this means. A patient sent to Huchard for paracentesis on account of ascites and supposed cirrhosis of the liver, proved to have a very violent crural neuralgia, rebellious to all treatment, which impressed him with the possibility of an aneurysm, and searching, he discovered it in the abdominal aorta, behind the ascitic effusion. In three other cases puncture of a pleuritic effusion was advised, but again the history of pain persisting for several years in the latero-posterior portion of the thorax led to the discovery of an aneurysm. Puncture in any of these patients might have proved disastrous.

Lesions in Liver and Kidney in Case of Intoxication from Food. P. H. PAPILLON.—A few hours after eating a *paté de foie gras* of bad quality, a workingman, 40 years of age, was taken with violent vomiting and diarrhea, and died with choleriform phenomena and erythema in seven days. There was necrosis of almost the entire secreting epithelium in the kidney, and in addition to small foci of parenchymatous hepatitis, a diffuse infiltration of the glandular cells of the liver with ochre pigment, probable evidence of an alteration in the blood. Bacteriologic examination was negative.

Gastric Juice from Dogs, in Treatment of Hypopepsia. FREMONT.—By isolating the stomach of dogs Fremont has succeeded in obtaining a continual secretion of gastric juice, which he administered with very favorable results in certain cases of dyspepsia, calling the substance "gastrine." Hayem calls attention to the fact that gastric juice thus obtained differs materially from normal, and as it is hyperacid with free hydrochloric acid, the "gastrine" is in reality merely a strong solution of hydrochloric acid.

Echo Medicale (Lille), January 28 and February 11.

Curette and Boiling Water in Treatment of Tuberculosis of Bones. MOTY.—One observation is described at length out of an experience with five or six cases of large tuberculous abscesses treated by curetting; then large wads of cotton held with forceps were dipped in a boiling solution of boric acid and plunged to the depths of the cavity several times, as rapidly as possible. The wound was then dressed with tampons dipped in camphorated naphthol, after some had been injected. In the case described two large abscesses healed very rapidly, and three abrupt rises in temperature coincided with the cessation of suppuration.

Presse Medicale (Paris), February 17, 21 and 24.

Functions of Kidney in Chronic Nephritis. L. BERNARD.—A series of comprehensive tests undertaken by Bernard have established that the permeability of the kidney is not uniformly diminished in every case of nephritis. There is nephritis with and without permeability. Also, there is no necessary connection between the existence of uremic phenomena and the renal impermeability, indicating that the latter is not the only factor in the clinical manifestations which constitute uremia, and showing the fallacy of basing the prognosis on the permeability. Renal insufficiency represents the sum total of renal impermeability *plus* insufficiency of the other functions of the renal epithelium. The renal impermeability not only produces the auto-intoxication from retention which constitutes our syndrome of impermeability, but also mechanically induces cardio-arterial hypertension, and from this hypertension another syndrome results which, superposed on the preceding, presents the clinical picture of interstitial nephritis: polyuria, and *bruit de galop*. Consecutive to this cardio-arterial over-exertion, asthenia occurs, with hypotension and resulting edema and oliguria, and exaggeration of the intoxication. Later, the general functional disturbances add to the clinical picture. In parenchymatous nephritis, on the other hand, edema and almuminuria are observed before the impermeability, possibly due to a disturbance in the functions of the kidney. The syndrome of impermeability and hypertension only appear later. It is possible that edema of the viscera plays a part in the syndrome of parenchymatous nephritis during the first stage: dyspnea from edema of the lung, diarrhea from edema and albuminuria are observed before the impermeabil- terstitial and parenchymatous nephritis is quite distinct. The latter does not become transformed into the former, although sclerous lesions may suggest this transformation; and the interstitial does not become transformed into the parenchymatous. The dual nature of chronic nephritis is evidenced by the difference between the lesions, the clinical evolution and the pathologic physiology of what, for want of a better term, we call interstitial and parenchymatous nephritis.

Cryoscopy of Urine. H. CLAUDE.—The conclusions of this comprehensive study of cryoscopy of the urine, in heart and kidney affections, state that there is nothing to compare with it in the general oversight it affords of the functional synergies of the circulatory and urinary apparatus. If the kidneys are sound, it is an index of the heart function, and when both heart and kidneys are affected, the course of the trouble can be watched day by day. The technique is simple.

Hypertrophied Form of Tuberculous Stricture of Small Intestine. T. TUFFIER.—The cicatricial and fibrous variety are much more frequent than the hypertrophied, in which an inflammatory reaction becomes superposed on the primary tuberculous lesion, producing an actual fungous enteritis, the proliferations obstructing the lumen. Of the 45 operations on record for tuberculous stricture of the small intestine, 37 resulted in recovery, and also the 8 cases of the hypertrophied variety. The stenosed region was resected in all but one of the latter, and in six of these the resected portion included part of the small intestine, cecum and colon. In the case reported in detail the patient has returned to her old occupation and gained in weight during the ten months. In another the health was good a year later. The rest were not followed.

Leucocytes of Lymphatic Origin in Milky Ascites. F. WIDAL AND PROSPER MERKLEN.—In an alcoholic, 50 years of age, with subicterus, edema and ascites, the ascitic fluid was milky, but the small proportion of fatty particles—less than 1½ grams per liter—indicated a non-chylous origin. On the other hand, the milky fluid contained numbers of mononuclear leucocytes, to the exclusion of red corpuscles and any other kind of leucocyte. These mononuclear leucocytes accumulated in the fluid, indicated that this fluid must have been derived from the lymphatic vessels, although no lesion of these vessels could be discovered at the autopsy.

Progres Medical (Paris), February 3, 10 and 17.

Ocular Manifestations of Typhoid Fever. E. KOENIG.—Optic neuritis as a manifestation of typhoid infection has seldom been recorded, but an observation is here described which demonstrates that typhoid, like other major infectious processes, is able to cause ocular accidents and, among them, optic neuritis that may lead to atrophy and blindness. The observation confirms the existence of an optic neuritis of microbian

origin without, necessarily, the intervention of any other physiologic or pathologic mechanism.

Treatment of Exophthalmic Goiter with Electricity. L. R. REGNIER.—In the five observations described, the favorable results of persevering with electric treatment—*voltaisation stabile*—were so pronounced that Regnier considers this treatment urgently indicated in this disease. It has a moderating action on the heart, an electrolytic one on the tumor, a stimulating one on the secretion of the gland, a regulating action on the sympathetic in its various functions, and is free from all danger. One of his patients has been cured for four years. He places the negative electrode—200 sq. cm.—on the back, and the positive—80 sq. cm.—on the tumor, for ten to twenty minutes, three times a week.

Hygiene of Infancy. H. ROTHSCHILD.—The remarkable decrease in the infant mortality of Paris is traced to the use of sterilized milk and the advice given to mothers at the various crèches and maternities. The deaths from gastro-enteritis —which represent 89.7 per cent. of the total mortality under 1 year—were 373 less in 1899 than in 1898, although the heat was more protracted and the average higher.

Diluting Milk for Infants. J. BONIFAS.—The writer of this protest against the custom of diluting milk, which he claims should be given pure even to the youngest infants, bears the title of "medical inspector of nurslings." He has taken advantage of his special opportunities to make a study of this subject, and asserts that when the milk is diluted this dilutes the gastric juice, and the digestive power is proportionately weakened. The water added to the milk increases the task of absorption, which leads to fatigue and exhaustion of the organs. The intestinal mucosa may even refuse to absorb this excess of water, which thus remains as a foreign body to produce disturbance. The addition of water increases the amount ingested, with consequent dilatation of the stomach and bowels. He records a number of convincing observations to support his views, and the benefit of a pure or almost pure milk diet after the first ten days.

Revue de Chirurgie (Paris), February 10.

Potassium Hydrate Treatment of Cancroids. C. J. ROSSANDER.—It has been some time since anything has been heard from the treatment which Rossander only claims is applicable to cancroids of the face, and with which he has cured two cases, with no recurrence for several years. In two other cases the treatment was ineffectual, but a large number have been improved beyond all expectations. Half a Pravaz syringe of 1 or 1.5 per cent. solution of potassium hydrate is injected around the cancroid, the needle inserted to reach beneath it, the injection repeated every third day. Rossander now reports two new observations in which a malignant, rapidly spreading melanosarcoma and epithelioma were arrested. The fomer was absolutely cured; the patient, now 94 years of age, has had no recurrence in the five years since. In the second case the epithelioma had been extirpated, the recurrence treated with "cancroin," by Adamkiewicz, and supposed to be completely cured, but it recurred again in three months with increased malignancy, rebellious to the cancroin, and soon extended from the upper eyelid to the nostril and out on the cheek. As a last resort the patient, a young lawyer, went to Stockholm, and Rossander injected potassium hydrate with the result that the cancroids retrogressed until in four months, all had healed but a small spot in the center. He neglected to continue the injections as directed, but his health continued good for four years, when he succumbed to renewed development of the neoplasm. The injections produce no necrosis but rather seem to promote absorption from the periphery inward.

Iliac Colostomy by Double Ligature. M. GANGOLPHE.—Three years' experience with the simple, rapid method of colostomy described has demonstrated that the functional results are perfect, and Gangolphe waits no longer for further observations to confirm its advantages, considering his record of sixteen patients sufficient under the circumstances. The alvine discharges occur early in the morning, usually, between 5 and 7 o'clock. Consequently the subject can attend to the necessary precautions and then go to his business as usual, his condition unsuspected. A simple pad on a belt prevents any oozing between times. One of his patients is a commercial traveler, who has resumed his trips. All are unanimous in praising the services rendered by the intervention. Through a small incision a loop of the iliac colon is drawn out and a double thread passed through the center of the mesentery and cut, and each end used to tie one branch of the loop, the ligature forming two linked loops, drawn as tight as possible. The serous membrane of each half of the loop is sutured to the parietal serous membrane all around with fine silk stitches, half to an inch above the ligature, which is left undisturbed for forty-eight hours. Fluids are restricted during this interval and a few hypodermics of morphin are made. By the end of two days the loop is gangrened sufficiently to isolate the stumps effectually. It is opened and gangrenous portions removed with the thermocautery, Nature assisting in the process. None of the subjects vomited. There was slight fever, but no local complications. The new anus is level with the skin, and has a double opening, but the distal end contracts in time.

Treatment of Fractures of Clavicle. L. GRATSCHOFF.—This question, Gratschoff observes, has no history, as there has been no development to record, and we are still at Hippocrates' standpoint. He establishes, by a detailed algebraic study of the co-ordination, that an apparatus constructed for the treatment of a fractured clavicle should hold the shoulder at an angle of 12 degrees with the median plane; of 71 degrees with the frontal, of 15 degrees with the horizontal plane. The apparatus should prevent increased tension of the serratus magnus and suspensory fascia, while it should not interfere with the movements of the thorax, nor press too hard against the skin nor cause the wearer discomfort. The great difficulty is to suppress the effect of gravity; the weight of the arm alone is apt to interfere seriously with the healing. Gratschoff has devised an apparatus which answers all these conditions, with mathematical accuracy. It is easily applied; comfortable to wear; can be made of the most inexpensive materials, and two or three weeks complete the cure. It consists of three parts: 1, a shoulder splint fastened to the wounded arm with a bandage from elbow to root of the arm; 2, a solid, iron bar, one end fastened loose on a peg in the splint at the point of the shoulder, over the acromion. The other end is held immovable at a point about 4 cm. below the nipple on the sound side, where four straps are fastened together and to the iron rod. One passes vertically over the sound shoulder and buckles in the middle of the back to No. 2, which has been brought around the trunk horizontally under the bandaged arm. No. 3 extends downward, encircles the thigh on the sound side and buckles on itself in front. No. 4 passes under the sound arm, slanting diagonally downward across the back, and encircles the thigh on the side of the fracture, buckling on itself at the rear. There is a supplementary strap from the shoulder around the elbow, and a sling around the neck to hold the forearm. In Gratschoff's experience in Finland fractures of the clavicle form 15 per cent. of all fractures.

Total Splenectomy. F. LLOBET.—The spleen removed from a young woman in the case described weighed 2500 grams, was 51 cm. in circumference, and was attached to the rear wall of the abdomen with a pedicle 30 cm. long and 6 in diameter. It was also adherent to the anterior wall and contained cancerous nodules. Two months afterward, analysis of the blood showed 2,800,888 reds to 14,000 whites, and eleven days later, 4,600,000 reds. The patient is now in perfect health, seven months since operation.

Umbilical Hernia. M. K. SAPIEJKO.—Large, inveterate umbilical hernia is treated by Sapiejko with a median incision and the separation of the aponeurosis from the skin is 15 cm. each side of the incision. One rectus major is then brought across and sutured at this distance from the median line, and then the other rectus is brought across from the other side above it and sutured as far to the other side, thus forming a strong double wall over the region of the hernia. An elliptic flap has to be cut out of the skin to correspond. Among other observations he relates the success of this method in a woman four months pregnant, the rapidly enlarging abdomen affording the severest test of the method and proclaiming its remarkable advantages. In previous pregnancies the hernia and general enteroptosis had been so pronounced that the uterus had turned over and reached to the knees.

Semaine Medicale (Paris), February 20.

Observation of Pericardial Adhesion in a Youth: Autopsy. P. MERKLEN.—Besides evidences of aortic insufficiency, and a history of repeated attacks of chorea and articular rheumatism, there were symptoms denoting commencing pericardial adhesion: abnormal movements of the precordial region, systolic retraction of the apex, hypertrophy and dilatation of the heart, extensive area of dulness over the heart, and fixity of this dulness and of the location of the apex. Dulness over Traube's space from an effusion in the pleural cul-de-sac is suggestive, and in this case also the age of the patient—16—and the signs of pleuro-pericarditis, that is, the pericardial friction, the precordial pains and the tendency to progressive dilatation. The prognosis is unfavorable, but much can be done to mitigate the evil and not allow the heart to become fixed in an unnecessarily dilated condition, by combating the slow and insidious phlegmasia which is trying to turn the pericardium into a cicatricial sac. Prolonged rest in bed, immobilization of the inflamed surfaces, will favor the retrogression of the lesions, and often arrest their development. Revulsion of the precordial region with blisters, cauterization, iodized, diuretic and laxative medication are indicated. Digitalis proved injurious in the case reported, but the dulness was reduced from 20×15 to 14×11, and the liver dulness from 13 to 11, with wet cupping, theobromin or potassium nitrate and mild purgatives. But la grippe supervening aroused the latent articular rheumatism and death soon followed, the heart having increased to 20 cm. across, and weighing, empty, 1450 grams. The adhesion was complete with a few small gaps. The pericardium adherent to the heart was also fastened to the sternocostal surfaces with firm adhesions, and to the inner surface of both lungs by dry mediastinal pleurisy.

Centralblatt f. Chirurgie (Leipsic), March 3.

Metal Lathing, a New Material for Splints. C. HUEBSCHER.—The sheet metal stamped out to form a kind of lattice work, used in place of wooden laths under plaster or cement, is proving to be admirably adapted for making splints. Light, inexpensive, strong and yet flexible and permeable, it is recommended by Huebscher especially for military surgery. No padding is required under it, and an improvised splint tied with handkerchiefs over the underclothing, has the advantages of the best made splints. As a foundation for a plaster cast it imparts a solidity never previously attained. It has been extensively used in the construction of the Paris exposition buildings, where it is known as *métal déploye*, expanded metal in English, *Streckmetall* in German. If extreme lightness is desired aluminium is used.

Deutsche Medicinische Wochenschrift (Leipsic), March 1.

Early Diagnosis of Pulmonary Tuberculosis. E. LEVY AND H. BRUNS.—It is possible to obtain accurate information in regard to the existence of tuberculosis by inoculating animals with a minute quantity of the suspected bacilli, and this measure is recommended in this communication from the Strassburg Institute of Hygiene, as affording important information impossible to be obtained otherwise. The sputa are collected for twenty-four hours, and a suspicious portion is rinsed and guinea-pigs inoculated in the peritoneum, with .5 to 1.5 c.c. To destroy other micro-organisms in the sputa another portion is heated to 60 C. for ten minutes and inoculated into other animals. These simultaneous tests throw light on the question of mixed infection. The animals are killed in from four to ten weeks, and examined for tuberculous lesions, and it is astonishing how reliable this method is with even the fewest of bacilli. The tuberculin test is harmless, but it requires the patients to keep their room, and is apt to be misleading in the respect that an old, healed, encapsulated tuberculosis may react like a fresh infection.

New Method of Physical Diagnosis. E. WEISZ.—In pronouncing such words as kit, day, ketter, Weisz noticed that certain portions of certain intercostal spaces protruded, evidently from the lung expanding during speaking. These protuberances cease where the dulness over other organs commences, and consequently the lung itself marks its own limits and defines the line of demarcation between itself and neighboring organs, especially the upper margin of the liver. Children and persons under 30, with lean thorax and broad intercostal spaces, show these phonation protuberances most distinctly, the stomach empty. The phenomenon is not observed in ordinary breathing. It is only when the air is forced upward by the abdominal pressure, to set the vocal cords vibrating in expiration, the diaphragm pressed upward and the vocal cords still partially closed, that the lung expands laterally in these protuberances. Pleuritic effusions may also produce phonation phenomena in the intercostal spaces, and thus mark their limitations, and abdominal phonation phenomena are also worthy of study.

Pathology and Therapeutics of Lamellar Cataract. BAEHR.—In the 10,600 patients treated at Hirschberg's clinic in the last thirty years, 153 had lamellar cataract, bilateral in all but 7, and rhachitis was evident in 88.75 per cent.—degenerate teeth, 58.4 per cent.; convulsions, 40.4 per cent., and general rhachitis in 36 per cent. This extensive experience has proved that discission is the sovereign method of treating lamellar cataract in children. Older persons are treated with the flap incision and round pupil. Baehr describes a number of observations which demonstrate the injury to the eyesight from iridectomy, in these cases, and the pronounced improvement when the lens was removed, consecutive to the original iridectomy. The myopia usually accompanying lamellar cataract increases after iridectomy, and with it come central changes in the retina and further disturbances of sight. Removal of the lens obviates these dangers and also prevents the indistinctness of the image from diffusion of light, etc., which disturb the sight to such an extent that subjects who have had iridectomy done in youth return for relief later.

Pentosuria. BIAL.—Cases of pentosuria are easily confounded with light diabetes mellitus, and, in fact, only two cases of attested pentosuria are on record. Bial has had occasion to observe two others recently, both men in good health, although one had been supposed to have mild diabetes mellitus as the Trommer and phenyl-hydrazin tests gave a positive reaction. The diet had been the usual mixed one, and pentosuria persists even with deprivation of carbohydrates, as Blumenthal has established. It is more probably derived from the substance of the organs of the body; possibly it is a metabolic anomaly or result of the metabolic processes of grape sugar.

Vratch (St. Petersburg), January 28.

Curable Spinal Paralysis. L. KREWER.—Two observations of myelitis transversa dorsalis are described in detail, each terminating in complete recovery. The diagnosis was positive and Krewer attributes these curable cases to thrombosis or embolism of the arteries in the spinal cord, the obstruction in the vessel being finally absorbed.

St. Petersburg Medicinische Wochenschrift, February 10 and 17.

Thrombosis of Transverse Sinus. R. WANACH.—In one observation described, the streptococcus infection, thrombosis of transverse sinus and infarct in the lungs retrogressed after operation on the sinus, while another case of staphylococcus infection terminated fatally, in spite of operation and ligating the jugular vein. Wanach advocates ligating this vein when the thrombosis has extended to this point, but if it has not this progressive character, ligating might do harm, as the process might then invade the veins between the sinus and the ligature, and thus propagate the evil. If the thrombosed sinus is only operated on early enough—and this is the main point—ligating will be unnecessary.

Total Exclusion of Intestines. A. V. BERGMANN.—The ideal aim—leaving the totally excluded portion of the intestine in the abdomen—has not proved practicable to date, as the mucous membrane continues its secreting functions and leads to disturbances later. In an observation described by Bergmann, a large abscess and three perforations into the intestine were found; one in the appendix, which was removed. A fistula persisted at each perforation, and, two months later, this portion of the intestine was excluded: the small intestine near the ileocecal valve was cut and sutured end-to-end with the transverse colon. The fistulæ still persisted, and two months later the patient returned to have the excluded portion with its fistulæ extirpated. A third laparotomy proved the impossibility of total extirpation on account of solid adhesions in all directions, but the mucous membrane lining of the intes-

tine was found detachable, and the mucous tube was pulled out of the excluded portion and only the seromuscular coats left, imbedded in their adhesions. The part consisting of the cecum and stump of the small intestine could be extirpated entire, as the adhesions were easily detached. The bleeding was profuse, but arrested without trouble. The case is instructive, as in spite of the extensive abscess there was no fluctuation, and the clinical symptoms were less severe than might have been expected from the three perforations. The occurrence of the latter at such an early stage was also remarkable. Bergmann concludes that every fecal fistula indicates that intervention is too late, and warns to operate promptly in cases of appendicitis, to obviate the production of a rupture into the intestine, by providing an outlet for the pus elsewhere. In another observation reported, fatal occlusion of a partially excluded portion of the intestine—after entero-anastomosis—was not diagnosed until too late, as the free passage of feces and gases led to a misinterpretation of the symptoms of occlusion. This is a danger of entero-anastomosis that must be borne in mind.

Norkiskt Medicinisk Arkiv (Stockholm), January 30.

Histologic Study of Liver and Kidney Cysts. V. ELLERMANN.—Many writers now consider cystomata of the kidney, liver and ovaries, due to an active process in the epithelium. Ellermann has been studying the differences between retention cysts with passive epithelium and adenomatous cysts with primary proliferation of the epithelium, and has also been trying to determine to which class the cysts belong which occur in the kidney with liver cysts. He concludes, from study of seven cases, that the similarity between large cystic degenerated kidneys and ovarian cystomata is greater than hitherto supposed, as the adenomatous early stages of the cysts can also proceed from finished cysts. This is less easily established in regard to the liver, as the cysts here are preceded by a partial dilatation of the anastomosing capillary plexus, and in consequence a number of epithelial outrunners of the cyst are found, older than the cyst itself. It is possible that these adenomatous outrunners may be secondary even here, but this can only be determined by further study of the mytosis. Ellermann also found the difference between large kidney cystoma and other kidney cysts less than anticipated. Generalized sclerosis, which is usually accepted as the most frequent cause for scattered kidney cysts, was not present in his cases, while it was observed with one large cystoma of the kidney. Cysts in small, cystic-degenerated kidneys are not mere, passive receptacula. The epithelium, on the contrary, is frequently vigorous and not compressed, even showing an excess of energy at certain points, so that epithelial prominences or adenomatous outrunners develop. Phenomena which have been described as typical of cystoma of the kidney were also observed in other cysts of the organ, such as proliferation of the epithelium in the straight tubes. These are possibly, after all, cases of incipient or less pronounced cases of cystoma of the kidney. One case alone corresponded to the usual conception of retention cysts in a contracted kidney. The fact was also evident that there may be a wide difference between macroscopically similar cases. One observation demonstrated that a congenital "cyst-kidney" may also be found in an adult.

Societies.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 5-8.

Medical Association of the District of Columbia, Washington, April 5.

Western Ophthalmologic and Otolaryngologic Association, April 5-7.

Tennessee State Medical Society, Knoxville, April 10.

Florida State Medical Society, Orlando, April 11.

Mississippi State Medical Association, Meridian, April 11-13.

Medical Society of California, San Francisco, April 14-16.

Medical Association of Alabama, Montgomery, April 17.

South Carolina Medical Association, Charleston, April 18.

Louisiana State Medical Association, New Orleans, April 19-21.

Medical Association of Georgia, Atlanta, April 18.

Medical and Chirurgical Faculty of Maryland, Baltimore, April 24.

Texas State Medical Association, Waco, April 24.

American Proctologic Society, Washington, D. C., May 2 and 3.

Illinois State Medical Society, Springfield, Ill., May 15-17.

Adams County Medical Society.—This Society will celebrate its semi-centennial in Quincy, Ill., by a banquet of the medical fraternity, March 28. Prominent members of the profession will be the guests of honor on this occasion.

X-Ray Society.—On the morning of March 26, a meeting will be held in St. Louis, Mo., in the Insurance Exchange Building, to take preliminary steps toward the organization of an American X-ray society, with the object of promoting this branch of medicine and surgery.

The Denver Ophthalmological Society.—This Society will celebrate its first anniversary in April. The object of the organization is "the study and discussion of the branches of medical science in which the members are especially interested." Only those are accepted as members who are entitled to representation in the AMERICAN MEDICAL ASSOCIATION. The officers are: Chairman, Edward Jackson; Secretary, E. W. Stevens; Treasurer, W. C. Bane.

Cuban Medical Congress.—This congress will inaugurate its sessions Feb. 24, 1901, as already announced. The subjects appointed for discussion are: "Local Anthropology," and the various tropical diseases, "Therapeutic Application of Certain Indigenous Plants," and "Treatment of Tuberculosis with Local Climato-Therapy," "Unclassified Febrile Conditions in Infancy," and "Medical Topography, Statistics and Hydrology." Secretary, Dr. Enrique Nuñez, Havana.

Medical Society of the State of North Carolina.—This Society will meet in Tarboro, N. C., May 22, under the presidency of Dr. George W. Long, of Statesville. The Board of Medical Examiners will meet May 16, and make their report before the adjournment of the Society. The annual discussion will be held on the afternoon of May 23, the subject being "The Continued Fevers of North Carolina," led by Dr. James M. Parrot, of Kinston. That evening the annual essay will be read by Dr. R. H. Whitehead, of Chapel Hill, and the annual oration will be delivered by Dr. T. S. McMullan, of Hertford.

International Congresses at Paris.—More than a hundred congresses have been organized to meet at Paris this summer, besides those already announced in these columns. Others in which medical men might possibly be interested are the Congress of Automobilism, July 9; of Bibliography, August 16; of Chemistry, August 6; of Applied Chemistry, July 23; of Dentistry, August 8; of Hygiene, August 10; of Hypnotism, August 12; of Pharmacy, August 8; of Psychology; Woman's Congress (legal and educational rights, etc.), September 5, and congresses for the improvement of the blind and dumb, August 5 and 6.

Cleveland Medical Society.

Feb. 23, 1900.

SYPHILITIC GROWTH OF TONSIL.

DR. H. S. STRAIGHT presented a case of new growth of one tonsil that had been thought to be malignant, but which he preferred to regard, at least for a time, as syphilitic. With this idea in view he put the man on mixed treatment, although there was no specific history, which he finds is the rule in these cases. The patient was somewhat better at the end of a week's treatment. He considers it was wise in these cases to let the diagnosis be partly made by treatment without depending too much on the microscope.

LEG AMPUTATION UNDER COCAIN ANESTHESIA.

DR. W. E. LOWER reported a case of amputation at the middle third of the left leg, under anesthesia produced by injecting the spinal cord with cocain. On account of advanced arteriosclerosis general anesthesia could not be used. This amputation has been previously made by injecting the sciatic and anterior

crural nerves with cocain, but as recently some foreign surgeons have been injecting cocain into the cord, he thought this a good case on which to test the merits of this plan. Between the last dorsal and the first lumbar vertebræ he injected a syringeful of 1/5 of 1 per cent. solution of cocain. In about three minutes the man had complete anesthesia of both foot and leg. Motion was not entirely abolished, but the amputation was performed without the least evidence of pain. Further than that there was no shock, and the pulse did not vary beyond from 64 to 72 throughout the entire operation.

DR. R. J. WENNER asked whether he did not inject the cocain into the subarachnoid space rather than into the spinal cord. He said that the credit for first producing general anesthesia from the thorax down by this method belongs to an American, Dr. Leonard Corning, who reported some cases twenty-four years ago. He thinks grave disturbance would be produced by injecting the substance of the cord, and that in adults, as the syringe is put in between the last dorsal and first lumbar vertebræ, it would be just about at the end of the cord.

DR. W. E. LOWER does not think the cocain went into the cord, as the injection was done too low down. However, he has injected it into the cord of dogs, all recovering, and while there was afterward found to be some change in the cord microscopically, it was not so pronounced as to affect the animal.

TREATMENT OF OTITIS MEDIA.

DR. H. S. STRAIGHT read a paper on this subject. The disease is fairly common in this climate, most cases occurring in the spring and autumn. It is impossible in the beginning to tell whether a given case will take the catarrhal or suppurative form. He is not sure that the former ever passes into the suppurative form, but is inclined to believe that, in the absence of meddlesome treatment, one class of cases is almost certain to end in resolution, while another class, in spite of any treatment, is just as certain to result in suppuration. The individual case must be carefully studied. The one thing absolutely essential in the treatment is rest in bed, and next in importance is the application of heat. The latter will not abort a threatened abscess, but is used simply to relieve the pain, which is the chief aim of all treatment. One full dose of opium is useful in the severe pain of the early stage. If after the above measures have been carried out relief does not promptly occur, a paracentesis should at once be done. Drainage being established, the cure results promptly, as a rule. He insisted that the inflamed ear should be kept quiet, and especially that no attempt at inflation should be made.

DR. WILLIAM R. LINCOLN spoke particularly of the causative relation of posterior adenoids with middle ear disease. He too thinks that cold applications are of assistance in treating the latter, especially where there is a threatening mastoiditis. He called attention to the fact that paracentesis does not always afford immediate relief from pain, and urged that in doing this operation complete anesthesia should be employed.

DR. D. S. HANSON said that, following out the suggestions he had heard, he for several years treated middle ear disease by dropping into the canal, at short intervals, a 4 per cent. solution of cocain. Not always does this procedure relieve the pain, but it tends to avoid suppuration.

DR. J. ARTHUR JONES said that he had seen cases of spontaneous rupture of the drum in middle ear disease in which the canal was so infiltrated that there was scarcely space enough for the exit of the purulent discharge.

DR. W. E. WIRT said that in his own case, where he had been promised relief from pain in three or four days after paracentesis, it really lasted more than two weeks.

DR. H. S. STRAIGHT, in closing, said that in children who have middle ear suppuration adenoids are nearly always found. Occasionally the disease occurs following the removal of the adenoids. He saw one case of middle ear disease which he thought had subsided, and he then removed the adenoids, but the result was a necrosis of the mastoid bone. He has had the best results from using hot applications rather than cold, and does not hesitate to use poultices in spite of the fact that all the authorities condemn that practice. He used cocain in the way suggested, but it was not effective. He does not see how it could be absorbed in the canal unless there was advanced inflammation with exfoliation of the epithelium.

FOOT SPRAINS.

DR. C. A. HAMANN read a paper on this subject. Among the features discussed were gonorrheal rheumatism, involving the various articulations and bursas of the feet, achillodynia, which was described as an affection of the *bursa retrocalcanea* due to gonorrhea, tuberculosis, gout or to traumatism, plantar fascitis and Morton's disease of the toes. The pains caused by flat-foot were particularly described, as were also those following certain injuries of the bones and joints. Various forms of plantar neuritis were stated to be responsible for the pain in some cases, as are also certain diseases of the arteries. Raynaud's disease and erythromelalgia were briefly alluded to. Urethral, vesical and uterine affections were mentioned as causing reflex pains in the feet at times.

DR. C. G. FOOTE said that as a result of some X-ray studies in regard to the pathology of metatarsalgia, it was found that there was really a condensing osteitis of the metatarsal bone. This resulted in the production of the deformity described by Morton.

DR. W. E. WIRT said that exostoses have been found in a number of cases, causing very marked foot pains. They project posteriorly or downward from the calcaneum, and the pain is continuous. He reported a case of extreme *genu valgum* corrected by supracondyloid osteotomy. In this case the femurs were bent inward at an angle of about 45 degrees, thus making the knees cross at an angle of 90 degrees. He operated by cutting the knee three-fourths through, then fracturing the rest by manual force and putting it up in plaster of Paris. Each limb, operated on at an interval of four weeks, was kept in the plaster cast for a little over a month. The child is now able to run about, which it could not do before.

DR. R. J. WENNER reported a case, with a specimen, of anastomosing appendix. In this case an operation was done during the attack of appendicitis, and a heavy exudate was found around the coil of appendix, which latter at both ends opened into the large intestine. Also, in this case, the large intestine for a distance of four inches had very markedly thickened walls, seemingly nearly an inch in thickness.

San Francisco County Medical Society.

San Francisco, Cal., February Meeting.

TYPHOID BONE LESIONS.

DR. H. C. MOFFITT considered two cases of this condition. He examined a man, an American, aged 40, with nothing in the family or previous history of note save two attacks of pneumonia. He denied venereal infection. In March, 1899, there had been a long illness with continued high temperature, bronchitis and indefinite abdominal symptoms, regarded as an atypical typhoid, and convalescence was slow, but recovery finally perfect. In June, while on a hunting trip, there was a sudden and severe pain over the left shin, with later tenderness, redness and swelling.

This condition developed without cause other than the exertion attending a rough hunting trip; it persisted unchanged for a time, and then gradually and completely subsided. Some weeks later pain and tenderness occurred over the lower ribs, on the right side near the sternum, with swelling that slowly increased to the size of a hen's egg, was at first tender, hard, and after a few weeks indistinctly fluctuant. At no time were there any general symptoms. In August the swelling decreased a little; during early September it grew again and finally again decreased.

My examination showed practically nothing but the tumor and a marked Widal reaction, 1 to 10 and 1 to 50 dilution; there was no leucocytosis, no temperature, no trace of the former periostitis. The tumor involved the fourth and fifth ribs on the right, at their juncture with the cartilages, and extended along the latter nearly to the sternum. It was flat, not tender, hard at the circumference, and indefinitely elastic in the center, the size perhaps of half a large lemon. The X-ray showed the tumor superficial, the lung movement unimpeded, the shadow of the tumor a deep one in the center, lighter at the periphery, the ends of the ribs involved darker

than the other ribs. Two glands the size of a small bean were in the right axilla; there were no pectoral glands.

From the course and seat of the lesion, the Widal reaction, and absence of other etiology, there seems little doubt that the lesion was due to typhoid bacilli. I advised operation, but this was deferred, and, under indifferent treatment with phosphates, the lesion has again subsided and gives no trouble.

On Oct. 31, 1899, I saw a man of 45, just back from Cape Nome, who had never been ill except while there, where he was in the hospital during August and early September, with so-called malaria. He was ill four weeks, then apparently well for a week, then again seized with fever and chills. He sailed for San Francisco while in this condition. While on board he was assiduously dosed with calomel and quinin, and reached here greatly prostrated and with high fever and severe headache.

Examination showed a big spleen, Widal reaction and absence of plasmodia. The temperature traced a typical steep-curve chart, was normal in ten days, without any quinin, and convalescence was uninterrupted but slow, for there had been much emaciation. After a week more in bed and four days about the room, it became impossible to further restrain him, and he spent two days tramping about town on business affairs. Three days later I saw him with a temperature of 102 and complaining of considerable pain over the left shin and inner side of the knee. His general condition was good. There was nothing but swelling and tenderness of the inner head of the left tibia about its middle. This distinct periostitis subsided in five or six days under rest and fomentations, and gradual return to moderate exercise gave no further trouble. The patient reported December 1 for the last time, and presented no symptoms or signs.

SURGICAL TREATMENT OF TYPHOID.

DR. F. B. CARPENTER read a paper on this subject, confining himself to intestinal perforations. He called attention to the fact that the operation is of recent date, no case having been performed previous to 1884, when Mikulicz did the first recorded laparotomy for intestinal perforation due to typhoid fever. In the same year Keen, of Philadelphia, without any knowledge of the work of Mikulicz, performed the same operation.

He said the weight of opinion favors operation at the earliest possible moment at which it can be done properly, "properly" meaning that time should be taken to make all necessary and desirable preparation for a major operation, notwithstanding the opinion of Keen and other eminent authorities that it should not be performed until the patient has recovered from the shock and immediate result of the perforation and the contamination of the peritoneum with the intestinal contents; although in the opinion of the author this question is by no means settled, and each operator must rely on his own judgment and experience as to the advisability of operating or waiting. Marked shock always militates against the best results; on the other hand, an open bowel, pouring its contents into the peritoneal cavity, is not a cerebral sedative for the attendant. He called attention to the difficulty at times of making a positive diagnosis of perforation, as a small percentage of cases show no special symptom as the result of this lesion, though in the vast majority the onset of the appalling train is sudden and unmistakable. He called attention to the confusion of perforation with perforative appendicitis, particularly if perforation had taken place before the diagnosis of typhoid was confirmed. He prefers local anesthesia in these operations. Ordinarily the abdomen should be incised through the right rectus or right semilunar line, the perforations sought, inverted, and stitched, without paring the edges of the wound, thereby adding to the delay resulting from minute hemorrhages from freshly cut surfaces. The repair of the gut should be in such a manner as not to diminish its lumen. If necessary, resect the gut, make an anastomosis and search for other perforations, repair any such found, and any spot which looks as though it might in future perforate. The suture to be preferred in this work is the mattress suture of Halsted. The toilet of the peritoneum must be done according to the best judgment of the operator. Irrigating and flushing are hard on serous surfaces. Cleansing must be thorough or the operation not undertaken; drainage will frequently be necessary. Begin your work with preparations complete, he said, and make proper use of salines, coffee, strychnin, heat, alcohol, and such restoratives as are valuable, and if there is a prospect of the patient surviving, let only the certainty of death interdict it.

TREATMENT OF TYPHOID FEVER.

DR. WM. WATT KERR, speaking on this subject, said that he does not believe there is any specific treatment. It is claimed that certain lines do tend to abort the disease, and that certain statistics prove this. The claim is always made that if such and such a treatment is adopted before the fourth day, then the case may be aborted about the tenth or twelfth. There are two big fallacies in that: the difficulty of making the diagnosis of typhoid fever any time during the first week, and the fact that typhoid fever itself is liable to abort about the tenth or twelfth day without any treatment. We do not get the Widal reaction until about the seventh or eighth day or later. The rash does not appear before the second week. The diazo reaction is not seen before the second week. All this makes the positive diagnosis very difficult indeed. He very rarely sees anything like the typical typhoid charts seen eighteen or twenty years ago—the typical rise during the first week, with the prolonged course, and then gradual lysis. The course of treatment must therefore go along the old lines of conducting the patient through the attack by attention to the symptoms, and then by adopting that which will tend to avoid the more common complications and afterward the treatment of such complications as may arise. We must conduct the patient through the disease rather than do anything that will kill the disease itself. The armamentarium he prefers for typhoid includes calomel, salol, digitalis, strychnin, and water. These are what he would like to be provided with when expecting to see a case, and yet he might not use any one of them, or might use all. Salol or calomel clear the intestine and at the same time prevent fermentative changes which would posibly favor the further growth of the bacilli, and certainly these changes would tend toward a mixed infection, which is accountable for many of the symptoms and unfavorbale signs that occur in typhoid. He usually gives a mercurial to start with, and repeats it once in four or five days, and then gives salol—5 or 10 gr., according to the patient—once in three or four hours, watching the condition of the urine. If the latter becomes tinged, the dose is slightly diminished. He has never seen any depressing effects from salol. Digitalis and strychnin are only generally indicated in the late stages, where we find signs of heart failure. The water comes in as part of the regular treatment. There are many antipyretics suggested, and it is questionable whether we do not pay a little too much attention to the treatment of the fever itself. Without doubt its reduction to a moderate extent does husband the strength of the patient and he generally makes a much better convalescence, and the disease runs a more normal course of about three to four weeks, but still, the temperature is a little of a bugbear in typhoid, he thinks, and should be viewed with relation to the patient himself. If it is not very high it should require no special treatment. Then it is a mooted question whether a certain amount of fever is not beneficial. His experience with apyretic typhoids—all of whom died—shows that there may be something in the statement that a certain degree of fever is better for the patient than otherwise. As to the water treatment, he prefers the cold sponging. He has used guaiacol externally and obtained very good results in a long list of cases with very little depression, but in the last year or so the results have not been so good. He has not discontinued its use entirely, as it is useful in some cases where the cold water does not reduce the temperature. One or two applications reduced it and it was then easily kept down by cold sponging. He does not believe that cold water by Brand's method or by cold sponging, or by means of coils over the abdomen, cuts short the disease, but it makes the remissions and renders the patient more comfortable, and by the remissions husbands the strength of the patient. The use of means for reducing temperature so that the patient's strength will be economized is kept in view in all the various lines of treatment. He put the majority on a milk diet. Usually the mistake is made of giving too much milk. Forty-eight ounces a day is plenty, and more than this usually causes curds in the stools.

Nitrogenous food should not be given in the early stages, but it can not be too early commenced in convalescence.

CARCINOMA OF MAMMA.

DR. J. ROSENSTEIN exhibited specimens from a woman having multiple carcinoma resulting from carcinomata of the mamma. She was 56 years of age, and the wife of a physician who was under the erroneous impression that she suffered from an ademona of the breast, and therefore did not allow it to be operated on until too late. The first specimen was a mass of tumors, which had their origin in the left breast, beginning as small nodules in the lower part and gradually entirely involving it. Three years ago it began to involve also the right breast and soon there were symptoms of involvement of the pleura of that side. At one time the Doctor aspirated 1550 c. c. of a clear, slightly sanguinated liquid. Microscopic examination showed nothing more than is usually seen in ordinary pleuritic effusions. The dulness which prevailed before the aspiration did not disappear on repeated aspiration, showing that there was infiltration of the lung tisue. The second specimen comprised both lungs, the heart, the infiltrated pleura, and the affected glands on the thoracic side of the diaphragm, while the peritoneal side was comparatively free. The bronchial glands were everywhere involved; the lung was full of carcinomatous nodules. Part of the sternum and some of the ribs attacked by the carcinomatous process were also shown. The liver showed some carcinomatous nodules also. The ovary showed two distinct nodules which may be fibromata, microscopic examination not yet having been made.

Philadelphia Academy of Surgery.

March 5, 1900.

ARTHRITIS OF WRIST-JOINT.

DR. R. G. LECONTE presented a case of this condition in a man 22 years of age, which had followed an injury six years previously. Regarding the treatment of tubercular arthritis, Stuttgart has advised splitting the joint, recommending this procedure when the foot is the seat of disease. Mynter has modified this, and Taylor the Mynter method. Taylor's does not involve opening the palmar surface, which is advantageous. In his case Dr. LeConte followed the latter's method of excision of the wrist-joint. Tubercular arthritis of the joint was present, involving the carpus, radius and ulnar and fourth and fifth metacarpal bones, as shown by the radiograph.

DR. JOHN B. DEAVER has always excised the wrist-joint by the side incision, and he wished to know the advantages offered by the method employed.

DR. WILLIAM J. TAYLOR, in reply, stated that the operation employed gives a better opportunity of exposing the diseased tissue to view, and in this way facilitates its easy removal. In other methods all the diseased structures can not be exposed and thus a tubercular focus may be left behind.

HEMORRHAGE INTO FALLOPIAN TUBE.

DR. GEORGE ERETY SHOEMAKER reported a case of interstitial hemorrhage into the Fallopian tube, simulating acute appendicitis, in a woman of 43 years, who had married one year previously. Her periods had always been regular. The onset of the condition was sudden, with acute pain and symptoms of collapse, with knees drawn up and abdominal muscles rigid. The pulse was 63, of good volume and the temperature 99. The bimanual examination was not clear, and the physical signs were not present to such a degree that a positive diagnosis could be made. There was extreme tenderness over McBurney's point, and appendicitis was thought to be present. The abdomen was opened and about four drams of bloody fluid evacuated. The tube, found diseased, was removed. There was an interstitial hemorrhage found, but there had been no hemorrhage into the broad ligament. In some respects the condition resembled an extrauterine pregnancy, but no fetus was found. The appendix was removed.

PAPILLOMA OF INGUINAL GLANDS.

DR. G. E. SHOEMAKER also reported a case of primary cystic papilloma of the inguinal glands, interesting from the fact that the disease had developed on both sides of the body, the left side being first affected. The patient, a woman of middle life, stated that the condition had begun three years previously. On examination it resembled a cyst, but after incision the tumor was found attached to the deeper structures on its under surface, which was rather hard. The cyst ruptured, at the operation, but the remainder of the tumor was removed from around the saphenous opening. It resembled a dermoid which had subsquently assumed a papillomatous nature.

NEW STERILIZER.

DR. G. E. SHOEMAKER also exhibited a small sterilizer which he has devised. It consists simply of small shallow copper pans, the inside of which are lined with tin. They are of sufficient length and depth to hold the instruments ordinarily necessary. In the top of each pan is a ridge projecting somewhat above the surface and about an inch from the edges so as to allow the drip water to escape while the instruments are being steamed.

DR. JOHN B. DEAVER, commenting on the first case presented by Dr. Shoemaker, spoke of having been called to operate in a supposed case of appendicitis, which was found to be one of extrauterine pregnancy.

INTRAVENOUS INJECTIONS.

DR. RICHARD H. HARTE read a paper entitled "Observations on the Use of Intravenous Injections." After carefully detailing the history of this procedure the speaker gave the objections which have been urged against the process, viz.: danger of entrance of air into the vessels; rapid coagulation of the blood; complexity of the process, etc. He spoke of a case in which the transfusion of warm, fresh, bovine milk was used, but without much actual benefit. The danger of loss of blood arises from a sudden depression to the circulation and its action on the heart, so that the volume of fluid must be quickly restored in order to save life. In this condition quantity is of more importance than quality. Of the different fluids advised, the normal saline solution has been most employed. Distilled water destroys the red blood-corpuscles. Transfusion has the effect of raising the blood-pressure, stimulates the heart and the renal secretion. He has found, however, that the transfusion of normal saline solution has been unsatisfactory. He has devised an apparatus consisting of a graduated bottle, with a rubber stopper through which are inserted two small glass tubes having the ends bent. To one is attached a rubber tube and canula, and to the other a rubber bulb. Pressure of the latter causes the fluid to flow in a constant stream and without undue pressure. The temperature can always be regulated by placing the fluids in warm water and registered by the thermometer which also runs through the rubber stopper and extends downward into the saline solution. Transfusion was last year employed probably fifty times at the Pennsylvania Hospital. In one case of uremia, in which it was used several times, beneficial effects always followed. In one of severe hemorrhage and one in which the patient was *in extremis*, it did good.

DR. H. R. WHARTON said that the infusion of normal saline solution into the cellular tissue would often act as well as intravenous transfusion.

DR. W. J. TAYLOR considers intravenous transfusion of normal saline solution of great advantage. In one case in which he employed it he feels quite sure it saved the patient's life.

DR. JOHN B. DEAVER has seen good results follow its injection into the bowels.

DR. W. L. RODMAN has for many years practiced hypodermoclysis. However, where an immediate effect is desired, he thinks that intravenous injection is the method to be employed.

SURGERY OF THE KIDNEY.

DR. J. B. DEAVER reported several cases of surgery of the kidney. The first was that of a man suffering from a movable kidney, who had for several years been suffering from nausea and vomiting, with hematuria. The second was that of a man who suffered severe pain in the left inguinal region for years. The pain was at times referred to the end of the penis. The kidney was movable. The third was one of stone in the pelvis of the kidney. For two years previously the patient suffered with pain in the left loin, on motion. Micturition was painful and was always worse during constipation.

In another man, 33 years of age, a provisional diagnosis of

hydronephrosis was made. He had for several years complained of pain in the right loin and pain on micturition. Four years previously a tumor developed in the loin, the size of an apple, and disappeared quite suddenly. The urine contained a small amount of blood and albumin. A posterior incision was made, the kidney exposed, and to prevent hemorrhage, gauze was packed quite firmly around the organ. The kidney contained a cyst, which was incised, and afterward the kidney was removed. Hemorrhage was slight.

DR. W. L. RODMAN spoke of the small amount of blood lost at the operation as performed by Dr. Deaver, and the facility afforded in controlling hemorrhage when this operation is done by the posterior method.

New York Academy of Medicine.

Section on Pediatrics, March 8, 1900.

HYSTERIC AFFECTION OF LARYNX.

DR. CHAS. HERRMANN presented a boy, of 11 years, who was suffering from an interesting hysteric affection of the larynx. The diagnosis had been made after a careful study of the case, though largely based on the presence of certain hysteric stigmata. Every few minutes, without any warning, the boy would suddenly emit a loud, shrill, barking sound. He was susceptible to hypnotism, and his general nutrition was good.

CHEMICAL COMPOSITION OF MILK AND CREAM.

PROF. JOHN ADRIANCE, Ph.D., made a brief address on this subject, showing its important bearing on the proper modification of milk for infant feeding. He cited the results of numerous analyses of cow's milk, made in various foreign countries, at our own Government experimental station, and by himself, all going to prove conclusively that we have been wrong in assuming that cow's milk generally contains 4 per cent. of proteids. As a matter of fact, it rarely contains over 3.5 per cent., hence the error which must necessarily arise from assuming that it contains 4 per cent., and proceeding on this basis to dilute the milk in the process of fortifying it. A most important fact to remember in this connection, and one which the lecturer demonstrated very clearly by a large array of figures and graphic charts, is that as the fat is increased, the percentages of the other ingredients are materially reduced. This holds good, and should be reckoned with when diluting either gravity or centrifuge cream.

The composition of milk is quite accurately expressed as follows: fat, 4.28 per cent.; sugar, 4.71 per cent.; proteids, 3.59 per cent.; other solids, .77 per cent. From the foregoing figures and statements, it follows that while the error from assuming 4 per cent. of proteids would be slight when diluting milk or cream below 1 per cent., this error amounts to almost ¼ of 1 per cent. if the dilution is carried to 2 per cent. The importance of such a difference is apparent, when the physician recalls the effect sometimes produced on an infant by varying the quantity of proteids in the feeding by only .2 per cent.

DR. J. E. WINTERS said that, as a result of clinical observation, he has long been of the opinion that the other ingredients of milk must decrease as the fat increases. As a matter of personal observation, he knows that if one takes two ounces from the upper portion of a quart of milk that has been standing for sixteen hours, there will be 7½ times as much fat as proteids, while if he takes four ounces from a quart that had been standing only eight hours, there will be 3 1/3 times as much fat as proteids. Not only do the results vary greatly, but they are also markedly affected by the temperature at which the milk has been kept. In his opinion, many of the poor results that have been obtained by those who essay to use modified milk are attributable to the use of too small a percentage of proteids. By comparing the human infant with the young of the lower animals, and the young of these different animals with one another, the greater the proportion of proteids in the food the more rapid and vigorous is the muscular development. Where rickets occurs in a breast-fed infant, it is almost invariably owing to the mother's milk having too low a percentage of proteids.

DR. L. EMMETT HOLT took very much the same position as Dr. Winters. He claims that a large part of infantile malnutrition is dependent on a deficiency of proteids in the food. Sometimes the infant seems to be unable to digest the desired quantity of proteids, but almost invariably it will be found that in such cases the digestive apparatus has been impaired by keeping the infant too long at first on a food weak in proteids. Another common error in feeding is to give as high as 5 or 6 per cent. of fat. The tendency among physicians is to begin with too large a proportion as proteids, and then, finding that the child's poor condition is owing to this improper adjustment of the ingredients of the food, they change to a food very poor in proteids, and keep the infant on this for an indefinite time, fearing to again increase the percentage of this part. His own plan is to begin with only .75, or perhaps .5 per cent. proteids, but after a very few days this percentage is increased, until it is no uncommon thing for an infant of six weeks to be thoroughly digesting, and thriving on, 1.5 per cent. of proteids. The physician should make it a point to commence with a very low percentage of proteids, but increase this as rapidly as the child is able to digest it. When managed in this way, a child of 2 or 3 months can often take, with advantage, a food containing 2 or 3 per cent. of proteids. In this connection it is most important for both physician and mother to know that it is very common for an infant to have slight digestive disturbance for a day or two following an increase in the percentage of proteids, but, as a rule, this will be transient, the digestive organs rapidly becoming accustomed to the change. At present infant feeding is very simple and successful, provided the little one's digestion has not been ruined at the outset by a few days of bad nursing or feeding.

DR. VANDERPOEL ADRIANCE called attention to the fact that a child fed on fat and carbohydrates alone will soon starve, these ingredients supplying fuel, but not vitality. Anemia and slow dentition are indications that the milk is poor in proteids.

DR. CHAS. HERRMANN said that he recently made some experimental studies and microscopic examination to test the truth of the assertion that poor results from the use of laboratory milk are largely owing to the fact that the milk is first separated by machinery, and afterward recombined. He found nothing in these experiments to justify this statement.

Section on Surgery, Feb. 12, 1900.

ACUTE INTESTINAL OBSTRUCTION; DIAGNOSIS AND TREATMENT.

DR. PARKER SYMS read a paper on this topic. The more important symptoms are: pain, vomiting, constipation, tympanites, and the small, rapid pulse, the anxious face and the peculiar combination of fear and braggadocio so characteristic of abdominal shock. He took the ground that intestinal obstruction, being a mechanical condition, demands mechanical means for its relief, and that while high enemata might be tried, very little time should be consumed in this way before resorting to abdominal section. His conclusions are: 1. Acute intestinal obstruction is a fatal condition if not promptly relieved. 2. It should be rarely fatal if promptly recognized and treated. 3. The symptoms of acute intestinal obstruction are characteristic and distinct, so that the diagnosis can always be made unless the symptoms have been obscured by the administration of opium. 4. Early laparotomy is the only plan of treatment which should be relied on.

DR. A. A. BERG believes that resection and intestinal anastomosis are often inadvisable at the time of relieving the acute obstruction, for the reason that this means that the bowel must be kept at rest for two or three days, thus confining the micro-organisms in the proximal loop of bowel. In his opinion, statistics would be better if an artificial anus were established at the first operation, and, by means of a tube inserted into the proximal and distal loops, these portions were washed out with saline solution.

DR. A. ERNEST GALLANT spoke of the great value of massage of the abdomen in cases of post-operative intestinal obstruction.

DR. WILLY MEYER advised that, in all cases, before attempting to replace the bowel in the abdomen, the gut above the seat of obstruction should be opened by an incision, and its contents evacuated.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION.
61 MARKET STREET, - CHICAGO.

SATURDAY, MARCH 24, 1900.

CONCUSSION OF THE NERVOUS SYSTEM.

Under the comprehensive designation of "traumatic neuroses," there have been grouped a number of symptoms in varying combination whose exact mechanism is still largely shrouded in doubt. Some of these manifestations are looked upon as purely functional disturbances, but, inasmuch as it is difficult to conceive of such disturbances without structural alteration, the explanation can be accepted only with the understanding that there may be present changes as yet undemonstrable with the aid of our present resources. On the other hand, some of the nervous symptoms following traumatism are unquestionably dependent on recognizable structural or organic lesions. The evidence on which these opinions have been formed is derived from both clinical and pathologic as well as experimental sources. In the past, much uncertainty has existed with regard to the disturbance to which was given the name of "concussion" or "commotion" of the nervous system. At the present time it seems probable that at least some of the symptoms are due to minute and microscopic lesions, as has been demonstrated of late in a number of instances. It is only with the aid of modern refinements in histologic technic that it has been possible to detect alterations that necessarily escaped observation hitherto, and if the accomplishments of the past are to be accepted as an indication of the progress of the future, the hope may be entertained that we shall yet become acquainted with the nature of many processes whose workings appear at present little short of mysterious. A well-studied and rather unusual case in which an injury to the head was followed by symptoms of profound nervous disturbance, although on post-mortem examination no adequate macroscopic lesion was found, while careful histologic study disclosed the presence of degenerative changes in the brain, is reported by Hauser.[2] A laborer, 56 years old, was found, after a debauch, at the foot of a flight of stairs, unconscious and bleeding from the nose. When examined, six or seven hours later, he replied to questions, but was not clear mentally. The eyelids on the right were discolored and slightly swollen, and an extravasation of blood was present beneath the conjunctiva. A tense and tender swelling was visible in the right temporal region. The presence of a fracture could not be made out. The pupils were small and reactive. The tongue when protruded deviated slightly to the right. The patient could not raise the arms, and could not extend them at the elbow-joint, nor extend the fingers. On the left side the hand also hung relaxed. The legs could not be raised, and if lifted up fell back, although there was some resistance to attempts at flexion of the leg. The flexed knee retained its position when the sole of the foot was supported. There was indolent response to pin-prick. The bladder was distended and was with difficulty evacuated by means of a catheter. In the course of a few days increase in the paralytic phenomena on the left side took place, and it was consequently thought that the condition was dependent on injury to the right cerebral hemisphere from pressure or contusion. Accordingly, the skull in the right temporal region was exposed and a fine fracture found in the parietal and temporal bones, running obliquely forward and downward and obviously crossing the path of the middle meningeal artery. A trephine-opening was made over the middle of this line, and was followed by the escape of a considerable amount of blood, in part from the bone and in part from below. The dura was tough, yellowish, tense and pulsatile. The membrane was incised, but there was no indication of hemorrhage. The soft membranes were smooth and glistening. The wound was tamponed and a dressing applied. On account of difficulty in passing the catheter, it became necessary to perform perineal section. The cerebral manifestations were uninfluenced by the operation, and with slight variations in the symptoms the condition of the patient grew gradually worse and death took place in the course of five days, the temperature rising to 105.6 degrees before the fatal termination. On post-mortem examination a fissure involving the entire thickness of the base of the skull was found extending from close to the margin of the trephine-opening backward, in a curved direction, across the groove for the middle meningeal artery for a distance of two inches beyond. Anteriorly the fissure passed obliquely downward, following for a short distance the anterior border of the right temporal fossa, then pursuing a wavy course over the posterior portion of the roof of the right orbit to the sella turcica, and for a distance of two-fifths of an inch in the left temporal fossa. The middle meningeal artery was uninjured. A few small recent clots were present on the inner aspect of the dura mater on the right and more posteriorly on the left. The soft membranes, especially on the right, were injected and in the sulci turbid. Over the left occipital and the posterior portion of the parietal lobe there was considerable hemorrhagic suffusion. A small amount of hemorrhage was present along the line of fracture. The cerebral tissue of the right hemisphere was hyperemic, and also that of the left hemisphere, though less so. The cortex in the vicinity of the hemorrhagic suffusion in the soft membranes was softened, but scarcely swollen. The soft membranes were readily detached, dense and edematous. On section there was found in the frontal lobe of the right hemisphere, two minute points of hemorrhage. The right striate body was large and promi-

[1] Deutches Archiv. f. Klin. Med., Bd. lxv, 5 u. 6 H., p. 433.

nent. On section it was found swollen, soft, moist, wanting in definition, and the gray matter the seat of indistinct, pale, yellowish-gray spots. A similar condition was present in the posterior portion of the left striate body, whose tissues were moist and wanting in firmness and presented about in the middle an indistinct yellowish area. On microscopic examination with various stains degenerative changes in axis-cylinders and medullary sheaths were found at a point diametrically opposite the site of the injury and particularly in the right striate body. In the former situation, at the junction between the cortex and the medulla, there were numerous granule-cells; and fewer in the latter. At the site of the injury, at a point diametrically opposite and in the central ganglia there were numerous partly swollen, partly degenerated axis-cylinders. Swelling was particulary marked in the right striate body. Some of the axis-cylinders were constricted and some tortuous. A small number of ganglion-cells at a point diametrically opposite the site of injury and in the right striate body were degenerated. In the same situation the lymph-spaces of the vessels were dilated. Only in the right striate body was an extravasation of blood—70 microns in extent—found; this was thought possibly to be an artefact. The fracture in this case is attributable to the injury of the right temporal region resulting from the fall, and it is reasonably believed that the injury must have been of considerable severity, on account of the extent of the fracture. The escape of the middle meningeal artery is rather remarkable. The macroscopic alterations in the skull indicate the direction in which the violence was applied, and the situations in which the force of the resultant contusion must have been expended. The changes in the central ganglia are remarkable because of their independence of any more superficial lesion, and also because of the absence of hemorrhage. The absence of all anatomic evidence of contusion of the cerebral tissues, especially the absence of hemorrhage, at the point of the brain most severely injured, seems to justify the opinion that the alterations in the central ganglia are dependent directly on greater transmission of the force of the injury in the direction of the traumatism.

SYPHILIS OF THE STOMACH.

It is well known that the stomach presents a degree of immunity against tuberculosis. Tubercle bacilli are undoubtedly frequently present in the gastric contents, but implantation and tuberculous ulceration rarely occur. In the small intestine it is different; here tuberculous ulcers are frequent. It is thought that the gastric juice, especially by virtue of its acidity, protects the mucous membrane against the tubercle germ. Syphilis of the stomach is also regarded as a decidedly infrequent gastric disease. At the present time no good reason can be given for the predilection of syphilis for some organs and its indifference toward others. As regards the stomach, however, it is rather doubtful just now whether syphilis of this organ is as "excessively rare" as stated in some of our text-books. There is reason to believe that gastric syphilis may be easily confounded with some of the more common affections, as well clinically as anatomically. This will be made more clear shortly.

By syphilis of the stomach is meant, of course, the presence in its walls of anatomic changes of a specific nature, and not merely concomitant or secondary digestive disturbances such as may develop at any period of the disease, more especially the secondary. In acquired syphilis it is in the latter stages that lesions of the walls of the stomach may appear. The actual anatomic and microscopic demonstrations of syphilitic lesions of the stomach are as yet few. In 1898 Flexner,[1] in reporting a case of gummatous infiltration, ulceration and rupture of the stomach and death from peritonitis, collected 14 cases from the literature, 5 in hereditary, 9 in acquired syphilis. Flexner's case appears to be the first reported in the English literature. Since then Fraenkel has described an instance of acquired syphilis of the stomach and of the intestines. Aristoff[2] states that microscopic lesions of the stomach are frequent in hereditary syphilis, small foci being found by means of the microscope in 7 of 9 cases, and lately Cesaris-Demel[3] adds an example of acquired syphilis of the ulcerative type.

Mracek[4] gives a good summary of the anatomic changes: "As the direct products of syphilis, ulcers originating from gummatous infiltrations occur in the stomach. These have been many times demonstrated by autopsies. They usually appear in the region of the pylorus and of the lesser curvature, and also at the cardia. Infiltrations develop in the submucosa and extend both in the direction of the mucosa as well as of the serosa of the stomach-wall. Besides these ulcerations, gummatous infiltrations, as well as cicatricial formations, were found, so that the possibility of cicatrization of gummatous ulcers in the stomach can not be excluded. Furthermore, ulcers due to a syphilitic endarteritis of the vessels of the stomach are met with. These have the characteristics of round ulcers, both in a clinical and anatomical sense."

The last statement is well illustrated by the case described by Cesaris-Demel: The clinical diagnosis was round ulcer of the stomach, macroscopically the lesion appeared as a round ulcer, and this is well shown in the accompanying illustration; microscopically the gummatous infiltrations and the characteristic vascular changes were present in other organs. An interesting feature in this case is the cause of death: hemorrhage from the margins of the ulcer into the walls of the stomach, and fatal hemorrhage into the peritonal cavity.

More frequently the ulcers are multiple, caused by dis-

---

[1] American Journal of Medical Sciences, 1898.
[2] Ztft. f. Heilkunde, 1898, xix, 395.
[3] Archivio per le Scienze Mediche, 1899, xxiii, 269.
[4] Lehmann's Atlas. Syphilis u. venerische Krankheiten, 1898: Quoted by Einhorn. Phila. Med. Jour., Feb. 3, 1900.

integration of the gummatous, submucous infiltrations, in part owing to the circulatory disturbances induced by the syphilitic vascular occlusion.

Dieulafoy, Fournier, Mackay, and Einhorn all describe refractory cases of gastric ulcers in syphilitics, with all the characteristic symptoms, including hemorrhages, prompt cure following vigorous antisyphilitic treatment. This clinical experience, coupled with the anatomic demonstration of cicatrization of gastric ulcers of syphilitic origin, is strong reason for believing that syphilis of the stomach is not as infrequent as generally might be supposed.

Einhorn,[5] in a valuable article, also describes two clinical cases of what he terms syphilitic tumor of the stomach; the characteristics of malignant tumors were present, the symptoms resembling those of cancer, but prompt cure was brought about by specific treatment. Presumably the lesion in these cases was an extensive gummatous infiltration of the walls of the stomach. In two other instances stenosis of the pylorus caused by palpable oval swellings in the pyloric region disappeared, as did the swellings under antisyphilitic medication.

Syphilis of the stomach is therefore no longer merely an anatomic rarity, but has become the subject of careful consideration in many cases, with clinical manifestations of some of the commoner gastric diseases such as round ulcer. Tertiary syphilis may produce severe gastric affections that are susceptible to antiluetic treatment (Einhorn). The possibility of syphilis being at the bottom of intractable diseases of the stomach should be borne in mind. The clinical diagnosis of syphilis of the stomach can not be made from the symptoms only; the history, evidences of syphilis elsewhere, and the effects of specific treatment must be relied on.

INFLUENCE OF ASTRINGENTS ON INTESTINAL ABSORPTION.

There has been much difference of opinion as to the mode of action of the group of medicaments designated astringents, and as to whether this is merely local or general as well. Thus, the constringent effect of tannic acid has been attributed to its affinity for water, to effect its solution; it has almost been thought to act directly on the blood-vessels. Silver nitrate and lead acetate have been experimentally shown to cause contraction of blood-vessels when applied locally; and iron chlorid also in slight degree; while tannic acid was thought to cause dilatation. Tannic acid was found, further, not to interfere with the artificial digestion of proteids. Further, the ability of tannic acid to coagulate albumin was lost on the addition of sufficient alkali to yield a slightly alkaline reaction. These conditions are present in the blood and, in this way, it has been thought, tannic acid may exert a remote physiologic effect. The astringent activity of the metallic salts has been attributed to combinations of tissue-albumin with metallic oxids, while the acid of the salt employed acted as a measure as free acid. The coating that forms prevents further action on the part of the astringent, while the thin layer formed superficially on the mucous membrane causes condensation of the tissues, with involution of hyperemia, transudation, migration of blood-corpuscles and other inflammatory phenomena. Later, it was found that the application of concentrated solutions of astringents caused dilatation of the blood-vessels, following brief contraction, while application of weak solutions induced contraction. The antiphlogistic action of astringents has been ascribed to chemical combination with proteid substances and changes in the walls of the vessels.

Astringents have been divided into two classes: 1. Those that act as caustics, combining, like tannic acid, alum and metallic salts, with or coagulating albumin. 2. Those that are merely astringent. In addition, there are soluble substances that, like lime-water, are rendered insoluble by combinations formed at the point of contact, and others that, like bismuth subnitrate and zinc oxid, are wholly insoluble. Tannic acid, silver nitrate, alum and lead acetate, even in feeble solution, have been found to inhibit secretory activity, but the mechanism remained obscure, although it was thought dependent on direct changes in the secretory cells. In an endeavor to harmonize existing discrepancies Gebhart[1] undertook a series of experimental observations on dogs, wholly separating a portion of the small intestine, with its mesenteric attachment, from its connections in continuity, and introducing through an abdominal fistula into this isolated portion of bowel the substances to be tested, including tannic acid, alum, lead acetate, silver nitrate and bismuth subnitrate. As a result of this investigation it was found that absorption from the small intestine is diminished by astringents, and in greatest degree by tannic acid. The action of bismuth is not dependent on its mechanical effect as a powder, but is chemical, for absorption remains uninfluenced by talc. The action of tannic acid is local and not remote. Even after removal of the astringent solution from the intestine, the inhibition of absorptive activity persists for some time. Alkaline solutions of tannic acid capable of precipitating albumin likewise exert an inhibitory influence on the absorptive process. A solution of tannin albuminate exhibited an inhibiting effect on absorption, but this was less marked than that of a solution of pure tannic acid. This circumstance and the fact of an after-effect indicate a local chemical action.

CLUMPING OF THE RED BLOOD-CORPUSCLES IN ACUTE PNEUMONIA AND CERTAIN OTHER DISEASES, AND THE SIGNIFICANCE OF THE BUFFY COAT IN THE SHED BLOOD.

The study of the phenomena of agglutination has given us many new and interesting facts, and among others this one, that agglutination is not limited in its field of action to bacteria only, but that under certain circumstances the action is exercised on such elements

[1] Deutsches Archiv f. Klin. Med., B. lxvi, p. 585.

as the red corpuscles of the blood. Indeed, the rouleaux-formation of the red discs is a kind of agglutination. The extent of rouleaux-formation varies under different conditions; at the present time it is almost wholly ignored as a factor in the production of the buffy coat in coagulation of the blood. But recent investigations by Shattock[1] show that the agglutination of red blood-corpuscles stands in a more or less direct relation to certain substances in the serum, and that it probably merits more attention in human pathology than it is now accorded.

Shattock shows that in horse's blood rouleaux-formation is highly pronounced and it is not affected by mixing the blood with salt solution, but when a hanging-drop of human or cat's blood mixed with salt solution is examined, the formation of rouleaux is almost wholly suspended; and a drop of horse's serum added to a drop of human blood exaggerates rouleaux-formation. This shows that rouleaux-formation is influenced by some property of serum; it is a phenomenon of agglutination and the amount of agglutinating substances normally present varies in different animals. Cold hinders agglutination of the red corpuscles in shed horse's blood, and it has the same effect on the agglutinating power which horse's serum has on typhoid bacilli.

Lister, as long ago as 1858, pointed out that rouleaux-formation is independent of the precipitation of fibrin, because it occurs in blood from which all of the fibrin has been removed. Wharton Jones observed that in inflammatory states the rouleaux formed more rapidly than in normal ones; this observer attributed the well-marked buffy coat in the shed blood of inflammatory diseases to this closer aggregation and the more rapid sedimentation thus produced. Others had advocated the same view before Wharton Jones. Shattock followed up the hints herein given; on adding a loopful of serum from a patient with lobular pneumonia to a loop of normal blood immediate and marked agglutination of the chromocytes occurred, the corpuscles running together into a complete, coarse network with empty spaces between. Normal human serum added to normal blood has no such effect. Salt solution promptly suspends the agglutinating effect of pneumonia serum. Shattock found that pneumonic serum exercises a distinct and specific but slow agglutinating action upon the pneumococcus. He concluded, therefore, that the same change in the serum that leads to clumping of the pneumococcus also leads to the increased clumping of the red corpuscles, that the formation of the buffy coat in pneumonia and other bacterial diseases is comparable to Widal's reaction. Similar results as in pneumonia were obtained in erysipelas and acute articular rheumatism, and to a less extent in typhoid fever. Leucocytes do not seem to agglutinate under these circumstances; this could be seen strikingly in treating leucemic blood with rheumatic serum.

We have here, then, an additional and seemingly important factor in the explanation of the buffy coat in the shed blood—and the familiar yellow, fibrinous clots observed in the heart and large vessels—in such diseases as acute pneumonia, namely increased agglutination of the red blood-corpuscles, leading to more rapid sedimentation and to the cleaning of the upper part of the layer. Heretofore the rapid sedimentation has not been clearly explained. Whether agglutination of chromocytes occurs in these diseases during life and the part that such clumps, if they do form, play in relation to thrombosis, are problems that have not yet been reached.

[1] Jour. of Path. and Bact., 1900, vi, 303.

FATAL GASTROINTESTINAL HEMORRHAGE DUE TO CIRRHOSIS OF THE LIVER.

Preble[1] reports 4 new cases of fatal gastrointestinal hemorrhage, and adds to this a study based on 56 from the literature, or 60 in all. The conclusions are to the effect that, though infrequent, fatal gastrointestinal hemorrhage is not a rare complication of hepatic cirrhosis, which may be atrophic or much more rarely hypertrophic. It is of interest to learn that in one-third of the cases the first hemorrhage is fatal, and undoubtedly many deaths from hemorrhages of this kind are attributed to other causes; in the other two-thirds the hemorrhages continue at varying intervals over a period of months and years, the maximum being eleven years.

In one-third of the cases the diagnosis can be made before or at the time of the first hemorrhage. In others it can not be made at all, or only after months or years during which other and more definite symptoms of cirrhosis develop. In 80 per cent., esophageal varices are present, and in over one-half of the cases the varices show ruptures visible to the naked eye; injection of air or fluid would undoubtedly demonstrate ruptures in many others. Hemorrhage without varicose veins in the esophagus are attributed to capillary hemorrhages from the mucous membrane of the stomach and the intestines; even in this class of cases the first symptom may be a fatal hemorrhage. In only 6 per cent. of those with varicose esophageal veins were the cirrhotic symptoms typical, i. e., accompanied with ascites, enlargement of the spleen, and subcutaneous abdominal varices.

As regards the veins especially concerned, it is so that the veins of the cardiac end of the stomach are part of the portal system while those of the esophagus are part of the systemic; anastomoses exist between the two sets of veins, but usually of so small a size or number as to play no part of consequence in the formation of a collateral circulation when the portal system is obstructed. But the anastomosis may be so free as to eventually completely compensate for the obstruction in the liver, the clinical course of the cirrhosis being thereby changed and masked. The submucous and periesophageal veins of the gullet are connected by penetrating branches; the esophageal veins empty into the inferior thyroid, internal mammary azygos minor, bronchial and other veins, all of which are more or less dilated when there is free com-

[1] Am. Jour. of Med. Sci., March 1900.

munication between the cardiac veins and the esophageal. The resulting esophageal varices in cirrhosis of the liver are found mostly in the lower part of the esophagus, sometimes extending over into the stomach; rarely the varices are found higher up in the esophagus. The progressive dilatation that occurs when the veins are distended with the blood seeking collateral channels leads to atrophy of the overlying tissue; the hemorrhage may be spontaneous, follow sudden physical exertion, or other increase in the obstruction to the flow of blood, as for instance thrombosis of some of the main portal veins. Rough bits of blood may cause mechanically the rupture of a varix. The intrathoracic situation of the esophageal veins subjects them to the negative pressure of inspiration so that blood is aspirated into them from the cardiac veins of the stomach, the pressure in the portal system being abnormally high in cirrhosis of the liver.

AN OPPOSER OF MEDICAL PRACTICE ACTS.

The "American Medical Union" is apparently a body devoted to the abolition of medical practice acts, and to free license of all sorts of *soi-disant* medical practitioners. It has an organ, edited by T. A. Bland, one of the faculty of the late fraudulent "Independent Medical College," which, with other probably equally truthful statements, claims that the president of the "American Medical Union," Dr. S. J. Avery, is a member of the AMERICAN MEDICAL ASSOCIATION. Since this may possibly be accepted as truth, we take occasion to say that he is not a member of that body, and that if there are any members of the AMERICAN MEDICAL ASSOCIATION who have affiliated themselves in any way with this "American Medical Union" we are not aware of it.

THE HOSPITAL PATHOLOGIST.

In an address on the "Progress and Drift in Pathology," J. Mitchell Prudden,[1] of New York, points out that the "general practical result of this busy quarter of a century in pathology is the getting together into useful form of a series of tests and methods by which the practitioner can secure greater accuracy in diagnosis and greater precision in treatment than was possible in the earlier days. These new methods in diagnosis, requiring considerable facility and some experience, now form a compact discipline which has been called clinical microscopy. . . . although strictly a practical adjunct to the work of the practitioner, clinical pathology still largely remains in the hands of the pathologist. This condition of affairs may be wise, and certainly must be convenient—for the practitioner." Prudden shows that the time-consuming tasks of clinical pathology divert the pathologist from lines of work in which lie his most cherished outlooks. Although this is a decidedly useful work, it often debars the pathologist from pursuing the lines of research that it is the privilege and duty of hospitals to encourage and maintain. Prudden urges, and properly too, that the medical boards of hospitals should create interneships in clinical pathology, the incumbents of which could be made responsible for much of the routine work in laboratory diagnosis. But how many of our hospitals have made adequate provisions for the work and the pay of that now so essential officer, the pathologist? Only a very few have shown the proper spirit in this respect. The pathologic work in the majority of our hospitals, of whatever kind, is generally in a shameful condition of neglect. There is a general absence, in the first place, of proper organization of the medical and surgical staffs; vacancies are commonly filled by those whose principal qualifications are money or various forms of influence; the records are incomplete and often absolutely worthless for the purpose of study and investigation; there is but little opportunity for investigation of any kind; there are no paid assistants in the laboratories and clinics, and in the majority of cases the pathologist in chief gives part or much of his time and skill without any other compensation than an occasional fee from some benevolent surgeon or physician. There is no chance for young men to work under the benign influences that foster the studious and scientific spirit by which medical science is advanced; hence the small amount of thorough work of a high qualitative value turned out from our numerous hospitals, most of which are known chiefly as the scene of action of able surgeons who often fail to utilize the splendid opportunities at hand to train young men who are able and willing to earn promotion by thorough work. There is large room for improvement in everything relating to scientific work and scientific spirit in our hospitals. This is especially true of those situated in the large inland cities. And this improvement might well begin with placing the pathologist upon proper footing as regards both salary and facilities for laboratory and post-mortem work. It is a hopeful sign that so many hospitals for the insane are taking steps in this direction, and it may be expected that general hospitals will give this aspect of their work the needful attention. In many instances the reform must begin in the attending staffs.

[1] Medical Record, March 10.

SAN FRANCISCO AND THE PLAGUE.

There has been much criticism in the local papers on the course of the San Francisco health authorities in quarantining the Chinese quarter of that city on account of the recent suspected case of the bubonic plague, referred to by our San Francisco correspondent, in another column of THE JOURNAL. Undoubtedly inconvenience was caused, but when one considers the responsibility of such officers, not only to the city but to the country at large, the complaints seem to us less reasonable than they probably do to those whose special interests were affected. If the plague once gets a foothold in the Chinese quarter of San Francisco, radical measures will be required to keep it from spreading and the possibility of its being there is an ample justification for rather extreme measures until it is definitely decided that the danger does not exist. San Francisco's citizens should consider that if they once permit the pestilence to get a footing among them, they will find themselves under much more inconvenient quarantine restrictions than those of the mere isolation of a single not too healthy and reputable section of their town. Whether we are fully justified or not in our dread of the disease, the existence of it has to be recognized. In any case, even should it confine its ravages to the Chinese, we do not want the plague among

us, and it is a satisfactory thought that the Health Board of San Francisco is wide awake to the very possible dangers of its introduction.

A TEST FOR "CHRISTIAN SCIENTISTS."

A Detroit physician has been applying the *argumentum ad hominem* to the "Christian Scientists," by proposing to give them hypodermic injections of substances the effects of which on the system are known, and letting them try to nullify them by faith. This is a perfectly fair proposition, and if their faith really amounted to anything they ought to be willing to submit to such experimentation, but, so far, none have responded to the challenge. Such a test as this even when only proposed ought to demonstrate the fraud to the very simplest minded, and yet the Eddyites and Dowieites will continue to flourish. If language was given, as Talleyrand said, for the purpose of concealing thoughts, reason must have been given some men for the purpose of making fools of themselves; at least that would explain "Christian Science" and its vagaries. If, as has been remarked by the *Detroit Free Press,* in its editorial comments, their theory that there is no reality to disease were true, the founder of the Christian religion, whom they claim to follow, would not have played the charlatan in pretending to cure it. The fact is, "Christian Science" is not Christian but heathen from top to bottom. The masses of its followers are deceived and self-deceived, but it is hard to believe that its shrewd leaders are altogether autointoxicated with their own verbiage, and that they are not conscious impostors throughout. The fact that they can even lead law-makers off after false gods is a serious one, and the suggestion of the Detroit physician referred to, that candidates for the legislature should be called on before election to state their positions as to the legal toleration or recognition of these practices, is a good one and should be carried out in the other states as well as in Michigan.

SUICIDES.

In an address before the Royal Society of Edinburgh, published in a recent issue of *The Lancet*, Sir John Sibbald, late commissioner in lunacy for Scotland, analyzes the statistics of suicide in that country, and questions some often expressed beliefs on the subject. He does not find suicide more frequent in urban than rural districts, though there are local peculiarities pointing to a race element in the case, showing the Saxon is much more suicidal than the Celt. One striking fact noticed is that the ratio of suicide by hanging, the one method that leaves the least doubt as to its motive, has been unchanged for thirty years, while the increase from other methods in the later statistics is compensated for by a decrease in the reported deaths by accident from the same causes. From this it would appear the more probable that the apparent increase of self-murder is due rather to greater accuracy in registration than to any actual change for the worse in the facts behind the figures. Another fact that seems to point this way is that in counties where suicides have apparently increased, the reports of "sudden deaths from causes not ascertained," etc., have greatly decreased of late years. From all these facts he concludes that increase of suicide must be regarded as not proven, and protests against the habit of accepting "crude statistics" without due critical examination. If we could accept Dr. Sibbald's criticisms as applicable everywhere, it would be encouraging, but it is questionable whether they can be thus universally applied. Suicide is more common in Paris than in the rural districts of France, and it is apparently more frequent in some cities in this country than in the villages and farming districts. Race is undoubtedly a factor, and so is religious belief, and the latter has perhaps had some effect in Scotland, though its influence is not apparently included in Sir John Sibbald's address. The Scotch are not generally infidels. Ingersoll's and others' influence in favor of suicide may probably be counted out there, while it may possibly be more effective in some of our own communities. A lack of faith in the future, good or bad, is we believe, a decided stimulus to suicide, or rather perhaps a preventive of its normal inhibition. It is doubtful to us whether Dr. Sibbald's conclusion of not proven may not itself be liable to a similar Scotch verdict if applied to this country. At any rate it would be of interest could we have a similar analysis of statistics for those parts in the United States where such are available and reliable.

Medical News.

A BEQUEST of $15,000, to Hatfield, Texas, has been made for a hospital.

BY THE will of Edward H. Stokes, Trenton, N. J., $2000 has been left the St. Francis Hospital of that city.

THE PARIS Academie de Médecine has unanimously voted in favor of adding measles to the list of contagious diseases that have to be reported.

THE SOUTHERN Kansas Methodist Conference recently expelled a member of their body, it is said, for practicing faith healing. He had taken a diploma and took up faith healing as a business in connection with preaching.

A COMMITTEE to promote the study of cancer has been organized at Berlin, with von Leyden chairman. A question blank is being drawn up to be sent to every physician and medical institution in Germany, to obtain data for the work.

ACCORDING to the *British Medical Journal,* a movement is on foot in Edinburgh toward procuring for Dr. Osler, professor of medicine in Johns Hopkins, a call to the chair of practice of physic in the University of Edinburgh, rendered vacant by the death of Sir Grainger Stewart.

LEON GOUJON, "externe des hôpitaux," has been suing Dr. Lagelouze, editor and proprietor of the Paris *Opinion Médicale,* for slander, referring to some articles commenting on the outrage at the Hôpital Beaujon when the papers for the interne examination were destroyed. Dr. Lagelouze appealed for postponement of the case until the official investigation had been concluded, but the court refused to continue the case, and condemned the editor of the *Opinion Médicale* to three months in prison, $1000 damages and "ten insertions of the sentence in the papers."

DR. HUNTER HOLMES MCGUIRE, Richmond, Va., is lying very low at his home and not expected to live. He was paralyzed on Monday, the 17th, completely as to

deglutition and speech. There was also motor paralysis of the right hand and forearm. A telegram just received—as we go to press, Thursday noon—states that the "symptoms are slightly improved to-day; he can swallow, utter some words, and his mind is clear." Dr. McGuire is only 65 years of age, and as his constitution has heretofore been robust, it is hoped that the favorable symptoms indicate complete recovery.

CHANGES AT RUSH MEDICAL COLLEGE.—In addition to the appointment of Dr. L. F. Barker, of Johns Hopkins, recently noted in THE JOURNAL, other contemplated changes in the faculty are as follows: Dr. H. B. Favill, will be professor of therapeutics and preventive medicine. Dr. Daniel R. Brower, former incumbent of the chair of materia medica, pharmacy and therapeutics, and Dr. John M. Dodson, of the chair of physiology, will hereafter have special departments connected with the chair of medicine, now in charge of Prof. Frank Billings, jointly shared with Profs. James B. Herrick and Henry M. Lyman. Dr. Dodson's successor as professor of physiology will be Dr. Jacques Loeb of the University of Chicago. A large amount of the work, especially in the junior class, will hereafter be done at the University of Chicago. Prof. Frank Billings has been chosen dean. Other contemplated changes will be announced as consummated.

MEDICAL SERVICE IN TRANSVAAL WAR.—A writer in *The Lancet*, March 10, says that 8424 persons passed through the hospital during the protracted siege of Ladysmith, recently brought to a close. The daily average under treatment ranged from 1500 to 2000. There were 1710 cases of enteric fever alone, and 800 of these under treatment at the time the town was relieved. The health record of Ladysmith has never been particularly good, typhoid fever and dysentery being usually prevalent there during this season of the year. Removal of the sick as well as the troops was promptly carried out, notwithstanding the fatigue and exhaustion necessary for the former even under the best arrangements, change of site being deemed essential for their interests after the long siege. Of the troops in South Africa as a whole, the sanitary conditions are very satisfactory, there being considerable enteric fever, dysentery and diarrhea, as might be expected under the existing condition and time of year. Pneumonia and respiratory affections are being noted occasionally from the soldiers on board ship.

NEW YORK.

Henry's bill for the shortening of drug clerks' hours was unexpectedly defeated in the Senate on the 15th.

THE FINANCE committee of the state senate has reported favorably on the Davis bill, appropriating $150,000 for the establishment of a state hospital in the Adirondacks, for the care of those suffering from incipient tuberculosis.

PHYSICIANS AND PHARMACY.

Attention has been called by Dr. J. Austin Kelly, of the Borough of Brooklyn, to the pernicious aspects of a proposed new pharmacy bill, now before the legislature. The present pharmacy law, as it stands, would appear to be amply sufficient to properly protect public interests, and if it is not, the proposed law could only work still greater public injury. At the present time registered physicians may, on payment of $2 and registering their names as pharmacists, practice pharmacy either as proprietors or clerks, and, even without so registering, they may dispense such medicines as are necessary or as they see fit, either at their offices or at the bedsides of their patients, without infringing the law. By the proposed new law a physician, in order to dispense medicine in any way, must in addition to his years of study to obtain his medical degree, spend four years more as a drug store employee before he can even present himself for examination as a drug clerk. "By the enforcement of this proposed law," Dr. Kelly points out, "a physician could be thrown into durance vile for a hypodermatic injection administered by him to a dying man, even though the latter was possibly the registered pharmacist of his neighborhood. And as for giving tablets or other medicine, even in the small hours of the morning, surely that would be a gross violation; although his action save some weary and over-worked drug clerk from crawling out of bed to possible pneumonia and death. Again, we have the veterinary doctor, who has had actual laboratory experience in compounding drugs, but who notwithstanding his five years of work to obtain his degree, must, to satisfy the framers of the proposed new law, be punished for compounding medicines for his sick animals, even though the majority of druggists would lack some of the ingredients of his prescription, and others, if possessing them, lack the knowledge to properly dispense them." Another objectionable feature is the provision that names of proprietors of drug stores must appear on the exterior of their stores, even though by so doing they incur suffering through religious or racial prejudices. It is believed that many worthy druggists who now reap much benefit by conducting their business under names other than their own would thus suffer seriously. Furthermore, the provision of revocation of license, carrying with it deprivation of livelihood, as it does, as a penalty for the small offense of not properly displaying credentials is altogether excessive. Beyond creating good positions for a favored few, such a law would be not only a useless but a most unjust measure, and one whose enforcement would be attended by incalculable evils. The profession has not therefore been at all generally aware of the real character of this bill, and Dr. Kelly is deserving of thanks for his explanation of it—a bill which, as he says, should receive condemnation at the hands of all anxious for the best interests of the public, of pharmacy, and of medicine in all its various ramifications.

New York City.

A NEW building estimated to cost $400,000, with the site, is to be erected for the French Hospital, $200,000 being already subscribed.

THE GOVERNOR has signed a bill giving New York City authority to construct a sewage disposal plant, the bill based on recommendations of Health Officer Doty, following a series of investigations conducted by him in various European and American cities.

PENNSYLVANIA.

TWO READING physicians have been fined $10 each for failure to report the number of births, required by the act of assembly.

THE REPORT of the Washington Hospital shows that 17 patients were treated in that institution during the month.

Philadelphia.

THE SALARIES of the two coroner's physicians have been raised from $1800 to $2500 per year.

DR. C. E. DE SAJOUS sailed for Bremen on the *Kaiser Wilhelm der Grosse*, March 20.

THE CITY council has at last decided to furnish filters for all the schools, and $35,000 has been appropriated therefor.

MEMBERS of the John B. Deaver Surgical Society gave a smoker at the University Club, in honor of their patron, Dr. Deaver, the evening of March 15.

DR. HENRY L. WILLIAMS, pathologist to the Howard Hospital and instructor of gynecology in the University of Pennsylvania, has accepted a position in the University of Minnesota.

THE GERMAN HOSPITAL will celebrate the 83d birthday of Mr. John D. Lankenau, who has devoted so much of his time and money for the welfare of this institution.

COUNCILS has appropriated $2000 for the establishment of a post-mortem room at the Municipal Hospital, and $405,000 for the construction of additional sewers in different parts of the city.

DURING THE past week typhoid fever has made a gain. The following are the vital statistics: nephritis, 34; cancer, 16; tuberculosis, 64; diabetes, 2; heart disease, 40; influenza, 7; septicemia, 3; suicide, 5, and tetanus, 2 deaths.

DR. J. M. BARTON has resigned from the board of surgeons and Dr. Samuel Wolfe from the medical staff of the Philadelphia Hospital. At a meeting of the Board of Charities and Corrections it was moved to make the board of surgeons eight members and the board of ophthalmic surgeons three instead of two. Dr. Howard Forde Hansell was elected to the latter board.

A MOVEMENT has been set on foot looking to the establishment of a dispensary system of relief for the charitable of this city, to be known as the "Blue Cross Medical Aid." Different branches will be established throughout the city, from which physicians will be sent to visit patients at their homes, and will dispense medicines. It is stated that the movement will be self-suporting through its own endowments.

HYGIENE OF SCHOOLS.

The Board of Education, in the matter of hygiene of the schools, has adopted the following requirements: The temperature of the room must not be permitted to be under 65 nor over 67 degrees; occasional hygrometric tests are to be made to assure the moisture being kept at 55 to 65 degrees; there is to be an air-supply to hot-air furnaces; air-ducts are to be at least four feet above the ground; windows of classrooms are to be raised for ten minutes during recess; teachers are to prohibit expectoration on the floors, and eating candy at recess; janitors will scatter sawdust on the floors before sweeping, wipe desks and seats with a wet cloth once a week, and wash floors, doors, and banisters with hot soda solution; during epidemics they will disinfect the rooms with formaldehyde; drinking water should be boiled; ordinary slates are to be abolished; and overcrowding of pupils in the different classrooms is to be prevented. Beginning with October next tests of the hearing and eyesight will be made, and individual drinking cups employed.

Pittsburg.

THE LEPER who has been for several years a dependent on public charity here, died March 13, in an abandoned portion of the Municipal Hospital. He was 42 years of age and contracted the disease while living in Brazil fifteen years ago. The building in which he lived has been burned.

THROUGH the recent action of the city council, $3,000,000 will be spent in the establishment of a filtration system. The material will be of sand and a slow system of filtration will be employed.

MARYLAND.

DR. E. M. SCHINDEL has been renominated by the Democrats as mayor of Hagerstown, and Dr. Jeptha E. Pitsnogle has been nominated by the Republicans for the same position. Both are graduates of the University of Maryland.

Baltimore.

DR. THOMAS OPIE, dean of the college of Physicians and Surgeons has been appointed a member of the jail board.

DR. EBERLE G. WELCH has been appointed captain and surgeon of the Fifth Regt. Veteran Corps, Maryland National Guard.

DR. WILLIAM ROYAL STOKES has been appointed city bacteriologist, at a salary of $1500, and Dr. N. G. Kierle, medical examiner, at $1000 a year.

DR. WILLIAM MACCALLUM, associate in pathology and curator of the museum of the Johns Hopkins Hospital, has been granted leave of absence and will spend six months in special study in Germany.

DR. JOHN VAN DENBURGH, a second year student in the Johns Hopkins Medical School, and a Ph.D. of Leland Stanford, Junior, University, has published a paper on the "Birds of California."

DR. CHARLES WARDELL STILES, PH.D., zoölogist of the Bureau of Animal Industry, U. S. Department of Agriculture, is giving a course of lectures at the Johns Hopkins Medical School on "Animal Parasites and their Relation to Disease."

DR. THOMAS B. FUTCHER, associate in medicine in the Johns Hopkins Medical School, will resign that position to commence practice in Toronto. Dr. Thomas McCrae, instructor, will become associate in medicine, and Dr. Wm. G. MacCallum will become instructor in medicine.

SUIT AGAINST CHRISTIAN SCIENTISTS.

Suit has been instituted in the court of common pleas, for $20,000 damages for alleged ill treatment by two "Christian Scientists" of this city, Otto C. Wordhoff, C. S. and Edward H. Hammond, C. S. D., both readers in the Church. It is alleged that the plaintiff was treated by the former for three and one-half months, no one being allowed to enter the room or speak to him during that time, so as to avoid making him subject to "mortal mind." In the meanwhile he suffered excruciating pain, his limbs and body swelling and gangrene affecting both limbs. Nordhoff then called in Hammond, who continued the treatment several days. Dec. 30, 1899, the treatment having failed to afford any help, the plaintiff, whose death was hourly expected, summoned Dr. White, under whose care he has greatly improved. The plaintiff states that he paid Nordhoff $5 for a book on "Christian Science" as part of his treatment, and has received bill for services rendered from both Nordhoff and Hammond.

A "CAST-IRON STOMACH."

On the 16th, Dr. William S. Halsted, at the Johns Hopkins Hospital, performed gastrotomy, removing from the stomach of a man who had been in the habit of swallowing them, nails, tacks, glass and similar articles. Six days before the operation, while in company with a number of students, he, in a spirit of bravado, swallowed the broken pieces of an entire beer glass, a quarter of a pound of ten-penny nails and a box of No. 14 tacks. During the night he had sharp, griping pains and vomited blood, but none of the foreign bodies. These symptoms continued up to the time of the operation. An inventory of the contents of the stomach showed: 72 nails, iron and wire, 1 to 1½ inches long; 19 wire nails, 4 inches long, with large heads; 1 pocket knife; 7 knife blades—one about three-fourths of an inch wide; 9 horseshoe nails, 4 inches long; 8 screws, 2½ inches long; 11 pins of ordinary size; 2 screw-eyes; 49 tacks, some with very large heads; 1 small staple; 25 grains of ground glass; 4 brass watch chains, with catches and stays, and 12½ feet of ⅜-inch iron chain.

ILLINOIS.

A TRAINED nurse in De Kalb County has been sued for slander by a physician, who charges that she declared a patient of his died from an overdose of morphin.

Chicago.

THE MEDICAL inspectors of schools examined 6131 pupils during the past week, of which number 342 were excluded on account of danger of infection.

DR. BAYARD HOLMES left the city March 21. He will attend the congress for the prevention of tuberculosis, at Naples, Italy, in April.

AT A meeting of the board of directors of the Chicago Eye, Ear, Nose and Throat College, Dr. A. G. Wippern was elected vice-president and treasurer, and Dr. Wm. L. Ballenger was re-elected to the chair of otology, rhinology and laryngology.

A CASE of smallpox was discovered in a boarding-house by the Health Department, March 19. The disease was traced to a family who came to Chicago ten weeks ago, from Butte City, Mont. Five cases have occurred in the boarding-house since their arrival.

MARY THOMPSON HOSPITAL.

The annual meeting of the directors of Mary Thompson Hospital for Women and Children was held March 20. The annual report showed that 517 patients were admitted during the year, and the total receipts were $20,744, leaving a balance of $300. The sum of $10,000, bequeathed by the late George M. Pullman, was formally accepted. The officers of the institution were re-elected.

MORTALITY.

The total mortality for the past week was 547, an increase of 21 over that of the preceding week. The excess in the total deaths is found among chronic invalids of advanced age, on whom the extreme climatic conditions had disastrous effect. The number of deaths among those over 60 was more than one-fourth of the total mortality. Influenza has been prevalent in a mild form since last October.

ILLINOIS RIVER WATER.

The engineering committee of the Chicago Drainage Canal Board has received a report on the examinations of Illinois River water, carried on in the interests of the Board. It is

said that the results have been adverse to the St. Louis suit now pending in the supreme court. The report states: "The condition of the water at the mouth of the Illinois was almost normal with that of the general water-supplies of the main tributaries of the Illinois River. The investigation so far shows clearly that there has been scarcely any pollution of water supplied to St. Louis at the intake."

INDIANA.

THE NEW Marion County Hospital for the Insane, at Julietta, will be ready for occupancy May 1.

DR. WALTER H. PETERS, of Lafayette, has been appointed special pension examiner in eye and ear cases for that district.

SINCE the first of the year the Terre Haute Board of Health has vaccinated 4776 pupils in the public schools.

THE MORTALITY of the state for February was 13.4, 2732 deaths being reported. Among these were 4 deaths from smallpox.

DR. FREDERIC PETTIJOHN, assistant physician at the Central Hospital for the Insane, has been elected president of the National Association of Assistant Physicians of Insane Hospitals.

DR. JOHN F. GLOVER, assistant superintendent of the Southern Hospital for the Insane, Evansville, has been appointed superintendent of that institution to fill the vacancy caused by the resignation of Dr. C. G. Mason.

BLOOD-POISONING WITHIN POLICY.

In an action brought to recover the insurance, from the Fidelity and Casualty Company, for the death of a physician, who accidentally pierced his finger with a needle, while performing a surgical operation, from which a fatal blood-poisoning developed, a press report, emanating from Richmond, Ind., states that Judge Fox has entered a judgment against the company, holding that the accident was covered by the policy which it issued.

OHIO.

THE TRUSTEES of the Lakeside Hospital, Cleveland, have received a gift of $50,000 from Mr. Samuel Mather, for the benefit of that institution.

THE LOWER HOUSE of the Ohio legislature has passed an act prohibiting the cutting of ice within the limits of any municipality without the consent of the local board of health. This board is also given authority to forbid the sale of any ice it may judge unfit for use.

MEDICAL PRACTICE IN OHIO.

The Love medical bill has passed the house, though vigorously opposed, as was expected, by the friends of osteopathy. The bill abolishes the present Board of Medical Examiners and Registration, and authorizes the governor to appoint a new one. It requires state examinations before the issuance of certificates to practice medicine, examinations to be held quarterly at Columbus, Cleveland, Toledo and Cincinnati, and that the applicants for medical certificates must have at least a high-school education. The Board may not deny certificates on grounds of grossly unprofessional conduct, those words being stricken out, but it is left possible that advertising may be construed as "immorality." Druggists may not recommend to customers proprietary medicines. The bill excepts students matriculating before Jan. 1, 1900, who present diplomas to the State Board before July 1, 1904. A great objection has been made by retail drugists of the state to the following important clause: "Any person shall be regarded as practicing medicine or surgery, within the meaning of this act, who shall prescribe, direct or recommend for the use of any person any drug or medicine, appliance, application, operation or treatment of whatever nature for the cure or relief of any wound, fracture or bodily injury, infirmity or disease."

Cincinnati.

DR. PAUL GILLESPIE, formerly interne to the Cincinnati Hospital, has just returned from a year's course of study abroad, and expects to practice in this city.

INTERNES CHOSEN.

Drs. Young and Tiltz of the Ohio Medical College, and Dr. Little of the Miami Medical College, have been elected internes to Christ Hospital, to serve eighteen months. Dr. Button of the Ohio College, and Dr. Williams of the Miami, have been elected to fill vacancies on the interne staff of the German Protestant Hospital. Their term of service of one year includes several months at the Ohio Maternity Hospital.

LAY PAPER DROPS MEDICAL ADVERTISEMENTS.

The *Cincinnati Post*, an evening journal of this city, has determined to exclude all medical advertisements from its advertising columns. Already there has been noted a great falling off in this regard, and the editor asserts that no new contracts of this nature will be made. This is all the more extraordinary and commendable when consideration is taken of the many columns of foul, prurient advertisements this paper has been printing for many years. THE JOURNAL joins the *Lancet-Clinic* in congratulations, and the hope that an increased circulation will more than compensate for the loss of revenue this new departure necessarily entails. (See our editorial columns also.)

COLORADO.

Denver.

INSANE ASYLUM.

The insane of Arapahoe County have been a source of annoyance to the County Hospital staff, as there are no accommodations in that institution for mentally afflicted persons. The County Commissioners have therefore decided to build an annex to the hospital, to accommodate 100 insane patients.

NEW STAFF FOR THE COUNTY HOSPITAL.

For the first time in the history of the County Hospital, the homeopaths of Denver have succeeded in receiving some sort of recognition. The county commissioners have appointed one physician of that school to serve respectively on the medical, surgical, obstetric, gynecologic, and eye and ear staffs. They, however, are not on the regular visiting staff, but are expected to visit the hospital officially only when their presence is requested by the patients. The new staff will take office April 1.

THE NATIONAL JEWISH HOME FOR CONSUMPTIVES.

The opening of this institution, previously noticed in THE JOURNAL, deserves further mention. In the years known in Colorado as "boom-years," the Jewish citizens of Denver raised enough money to erect a hospital for consumptives. They have recognized the fact that the number of afflicted among the Russian Jews is greater than the average in other nationalities, owing to their confining occupations and crowding in the large cities. It was then an easy matter to collect moneys, and in a short time a building was erected at the cost of $40,000. Just at the time when everything was ready for the dedication, the year of "panic" came. The doors of the hospital were not opened for seven years. The funds sufficient to run the institution could not be raised, notwithstanding the many attempts made. At last the Order of the Bnai Brith took up the matter at its meeting in Columbus, Ohio, in May, 1899, and a National board of control was appointed. It certainly reflects great honor on the oldest Jewish order of the world and on the local committee, composed of Dr. S. Simon, Alfred Muller and M. Friedman, who have been instrumental in inducing the order to take up the control of the hospital.

CALIFORNIA.

San Francisco.

THE PLAGUE SCARE.

[The following is a somewhat fuller account of the recent plague investigation in this city than was possible to give in our telegraphic report last week. ED.]

The animals inoculated with the serum from the gland from the Chinaman who died in the Chinese quarter under suspicious circumstances all died, as telegraphed last week. From a thorough post-mortem examination there remains but little doubt that the Chinaman died of bubonic plague. The spleens were found mottled, there was serum in the subcutaneous tissue, fluid in the pericardium, and great numbers of bacilli were found in the internal organs and in blood taken from the heart. These bacilli were identical with those found in the gland of the dead Chinaman. In their shape, size, and method of staining they were absolutely identical with the bacillus pestis. Of course the bacillus could be mistaken for the bacillus of rabbit septicemia, and also that of hog cholera,

were it not for the fact that neither of these are fatal to rats. These experiments took place at the Federal Quarantine Station in this harbor, where Dr. Kinyoun, the officer in charge of the station, extended every courtesy to the local board of health, and in every way added his valuable assistance in facilitating the work. Dr. Kinyoun is an able bacteriologist himself, and believes there can be no question that this is the genuine bacillus pestis. Dr. Douglas W. Montgomery, professor of dermatology in the medical department of the University of California, and one of our best known pathologists, has examined tissues both from the glands of the Chinaman and the animals. He is very positive in his statement that these bacilli are the bacilli of plague. Valuable services were rendered by Dr. Frank P. Wilson, the assistant city physician, who discovered and reported the suspicious case, and Dr. W. H. Kellog, city bacteriologist, who did valuable work in his laboratory. Both of these gentlemen, as well as all the officers of the local health board, are serving the city at present without remuneration, and all through these investigations the only reward the local board has received from the grateful public, whose interests and welfare they have been zealously guarding, has been abuse from almost all quarters, for what has been called their arbitrary quarantine of the Chinese quarter. This abuse has been most flagrant in the columns of two of our leading morning papers. The excellent work done by Dr. Kinyoun and Dr. Montgomery in this matter should also not go unmentioned. No further suspicious cases have been found, though a careful house-to-house search is being made, consequently the quarantine remains raised. The monkey, inoculated on March 7, with an emulsion made from a piece of glandular tissue removed from the groin of the dead Chinaman, died on the morning of the 13th, after showing signs of sickness for two days. Post-mortem examination made about six or eight hours after its death showed, at the point of inoculation, which was in the left breast, considerable coagulation necrosis. Subcutaneous edema was well marked, especially on the left side over the abdomen. The axillary lymphatic glands on the left side were enormously enlarged, forming a mass as large as a walnut, but no enlargement on the opposite side. On section the gland was congested and showed hemorrhages into the gland substance. Cover-slip preparations were made from the interior of the gland and stained with thionin, and showed the presence, in large numbers, of a short cocco-bacillus, with rounded ends, staining more deeply at the poles. The spleen was greatly enlarged, dark and friable and contained the same organism in enormous numbers. The pericardium contained a considerable amount of turbid fluid. The heart's blood was fluid and contained great numbers of the organism described above. The lungs showed the presence of a well-marked pneumonia.

[Three more cases of what is believed to be bubonic plague have been discovered in Chinatown, according to telegraphic advices as we go to press. ED.]

WISCONSIN.

A PHYSICIAN of Hudson, Wis., a surgeon of the Fourth Wisconsin Volunteers, recently sued the *Milwaukee Herold* for libel, that paper having published correspondence from Anniston, Ala., while the Fourth was in camp there, stating that the doctor did not attend to his duties and that the soldiers in the hospital did not receive proper care. The action was settled by the paper paying damages as well as making a complete retraction of the charges.

MICHIGAN.

The Michigan Supreme Court has affirmed the constitutionality of the amendment to the local option law made by the legislature, requiring druggists in local option counties to make weekly reports of all sales of liquor, including the name and residence of the purchaser, the date and object of the purchase, and the kind of liquor sold.

MORTALITY OF MICHIGAN.

During February 2673 deaths occurred in Michigan, 37 deaths more than during the preceding month, but over 1100 less than during February, 1899. The death-rate for the month was 14.5 per 1000 of population, showing a considerable increase over January, whose rate was 13. There were 445 deaths of infants under 1 year of age, 210 of children from 1 to 4 inclusive, and 772 of persons aged 65 years and over. Important causes were: pulmonary consumption, 168; other forms of tuberculosis, 37; typhoid fever, 33; diphtheria and croup, 47; scarlet fever, 25; measles, 47; whooping-cough, 17; pneumonia, 363; diarrheal diseases of children, 51; cerebro-spinal meningitis, 36; influenza, 61; puerperal septicemia, 19; cancer, 104; accidents and violence, 111. There was no marked increase in the deaths from any of these causes, but slight decrease from typhoid fever, diphtheria and croup.

MISSOURI.

THE ANNUAL commencement of Ensworth Medical College, St. Joseph, was held March 14. There were nineteen graduates.

THE THIRTY-FIRST annual commencement exercises of the Kansas City Medical College were held March 16. Forty-nine diplomas were awarded.

CANADA.

DR. R. S. MINNES, Ottawa, has been elected a member of Queen's University Council, Kingston.

A CITIZEN of West Toronto Junction has entered suit for damages against the town council for locating the smallpox hospital too near his residence.

DR. COTE of St. Pascal, whose death was announced in the last issue of THE JOURNAL, as being the first victim of smallpox in Quebec, writes to state that he is still alive, and that it was his brother who died.

FROM PORTAGE LA PRAIRIE, Manitoba, comes the report of the death of a woman under "Christian Science" treatment. She had been ailing for two months, but the husband refused to call proper medical attendance.

THE BILL before the Quebec legislature, asking that a certain young man be legally qualified to practice medicine in that province and compelling the College of Physicians and Surgeons to enroll his name on their register has been abandoned, as according to the statement of Dr. Cotton in the house, there was to be no further meddling with the medical act of the province if the College of Physicians and Surgeons would agree to exempt those who began the study of medicine before 1896 from the prescribed matriculation examination.

THE PROPOSED inquiry into the management of the British Columbia Asylum for the Insane, at New Westminster, announced in THE JOURNAL some few weeks ago, has taken place. The commissioners' report reflects great credit on the management of the institution. The committee found the hospital in very good order.

FRICTION IN A HOSPITAL.

Reports from Winnipeg, Man., bring the news that there is serious trouble brewing in the General Hospital of that city. As a consequence of differences of opinion in regard to nursing matters, held by the superintendent, Dr. Chestnut, and the lady superintendent, Miss Patterson, the latter has resigned. For some time past the citizens have been constantly making complaints that the directors of the institution should continue to put young college graduates at the head of the hospital instead of appointing an experienced and older physician as permanent medical superintendent. Miss Patterson is a graduate of Johns Hopkins, is said to be very capable, and has had an extended experience in the position she held, although it is but a short time since her appointment to the head of the nursing staff of the Winnipeg Hospital. No doubt the friction and her resignation will lead to a radical reorganization.

ONTARIO MEDICAL LIBRARY ASSOCIATION.

Dr. H. J. Hamilton, the secretary of this Association, has issued a circular letter to the members of the profession throughout Ontario calling for approval of a scheme to petition the local legislature of the province seeking a government grant to enable the Association to purchase, circulate, and preserve the latest medical works. No doubt many of the members of the medical profession in the province have felt that the government should contribute to this work, especially as it is well known that the legal profession have free library ac-

commodation at Osgoode Hall, estimated to represent at least $1500 a year, while the medical profession has to pay for its own library accommodation in the medical council chambers. There seems no valid reason why the government should not treat the medical profession as well as the legal. As the application will be made to the provincial government at once, these circulars are sent out seeking to obtain the unanimous support of the profession. The good work which this Association is now doing in sending books from the Ontario Medical Library to any member of the medical profession in Ontario, subject to the library rules and regulations, should be sufficient to induce all to co-operate in this laudable undertaking. Medical students are given the privilege of using the library as a reference library.

COMPULSORY VACCINATION IN BRITISH COLUMBIA.

The local board of health of Victoria is experiencing to the full the difficulty which was anticipated when the Provincial Board of Health, by order-in-council, insisted on compulsory vaccination among the school children throughout the province. The parents of many of the children attending the schools in Victoria have absolutely refused to have their children vaccinated, although the clause (Sec. 94 of the health act) provides that any person who violates any regulation of the Provincial Board of Health, shall, unless otherwise specially provided for, be liable to a fine not exceeding $100, with or without costs for every such offense, or to imprisonment, with or without labor, for a term not exceeding six months, or to both fine and imprisonment in the discretion of the convicting court. The act is not made compulsory for adults, hence there is much complaint from the people interested, as they consider that adults congregating in places of resort are just as apt to carry infection as the children.

CANADIAN PHYSICIANS FOR SOUTH AFRICA.

It is altogether probable that a movement will be inaugurated calling the attention of the Dominion Government to the fact that the Canadian wounded in South Africa ought to be cared for and attended by Canadian physicians. The surgeons who went with the several contingents are restricted to field duty, and after this first attention the Canadian does not see a doctor of his own country, but is surrounded on all sides by strangers. The reason why Canada has not already sent more Canadian surgeons to the front is put down to selfish medical legislation. Canadians do not ask to practice in London, England, without a British license, but in the colonies it is different. Students who fail here go to British colleges, Edinburgh for example, and there get their degree; and if a colonial degree is good enough for Canada, why is it not good enough for South Africa. If Canadians are permitted to fight, should not Canadian doctors be permitted to attend to them should they perchance be wounded. Surely the government will take this matter into immediate and serious consideration.

THE HOSPITAL "MACHINE."

The "machine" in politics in Canada, more particularly in the Province of Ontario, has within recent years been a familiar feature at our elections: its applicability to intriguing in the management of the affairs of a hospital is, however, a new departure. As recorded in the columns of THE JOURNAL a few months back, London, Ont., erected during the past summer a new hospital, and it was thought that from that time on everything would be lovely in the management and governance of the institution. London is also the home of the Western University, and it is at the General Hospital of the city that the students of the medical department receive their practical training. In connection with the erection of this new hospital a children's pavilion was, at great expense and no little trouble on the part of the ladies of London, especially provided for, but the directors have not seen fit to put it into use, say it was never needed, and continue to place the children side by side with cancer and consumptive patients. This untoward procedure has raised the wrath of the citizens, and they are demanding the resignation of the hospital board and the resignation of the medical superintendent as well.

MUSKOKA COTTAGE SANITARIUM FOR CONSUMPTIVES.

The annual report—1898-1899—of the National Sanitarium Association has just been issued. It shows that the sanitarium is now able to accommodate fifty patients, fifteen more than last year. Tents were used last summer up to the beginning of November, with satisfactory results. During the year a cottage was completed for the visiting physicians or members of the board on their visits to the institution; it is also used for the accommodation of friends of the patients when visiting them; the medical superintendent also occupies it as a residence. Besides this there have been many other improvements, such as a breakwater along the shore, an extension of the water-works system, etc. Miss Breckon, late superintendent of the Emergency Hospital, Toronto, is now at the head of the nursing department. Comparing results of the second year with that of the first, the average length of treatment has increased from 98 to 128 days. There has also been a corresponding increase in apparent cures, viz.: from 15 to 21 per cent. The relative cures, i. e., cases in which the disease has been arrested, have increased from 27 to 32 per cent. It has been amply proved that a longer stay than three months is necessary even in the earlier cases; from the 11 incipient ones remaining under three months only 2 were apparently cured; while of the 14 remaining more than three months, 12, or 85 per cent., were apparently cured. Of the 13 advanced cases remaining under three months, 5, or 39 per cent., had their disease arrested; while of 26 cases remaining over three months, 20, or 79 per cent., were either cured or had their disease arrested. It is stated in the report that most of those discharged with the disease arrested have returned to their work, while others have taken up life out of doors, at farming, etc., and if care is exercised they will ultimately be cured. An encouraging feature of the report is the statement that all of those reported in the first year's report as apparently cured remain as well as on discharge. Out of the 23 in whom the disease was arrested, 20 are still as well as on discharge. The number in the sanitarium at the end of the hospital year, Sept. 30, 1898, was 33; admitted during the year, 114. Of the total number treated during the year, 147, 48 remained on Sept. 30, 1899. Of the 99 reported on, 21 were discharged apparently cured, 32 with the disease arrested, 17 with marked improvement, 19 unimproved, 6 failed, and 4 died. Of the 99, 76 gained an average of 8¼ pounds in weight. The average stay of each patient was 126 days. The revenue for the year was $15,435.35; the expenditure $16,404.12.

Correspondence.

Varicella Ulcer of Cornea.

AMHERSTBURG, ONT., March 17, 1900.

To the Editor:—It may be of interest to Drs. Magee and Head, who reported cases of this condition recently (THE JOURNAL, March 17, p. 701), to learn that owing to the presence of smallpox in this place, I was called in consultation, a short time ago, to see a case of what was feared by some to be smallpox, but which the history and general appearance of the patient showed conclusively to be varicella. In this patient there was a well-marked ulcer of the upper and outer margin of the right cornea, which the attending physician informs me is readily yielding to treatment, and which I have no doubt is a genuine varicella ulcer.

THOS. HOBLEY, M.D., Medical Health Officer.

Book Notices.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By Robert Bartholow, M.A., M.D., LL.D., Professor Emeritus of Materia Medica, General Therapeutics, and Hygiene, in the Jefferson Medical College of Philadelphia. Tenth Edition. Revised and Enlarged. Price: Cloth, $6; Leather, $7; Half Morocco, $7.50. New York: D. Appleton & Co.

This edition of Dr. Bartholow's well-known and popular text-book will undoubtedly continue to receive the approval it has so well deserved in the past. The changes here made are stated by the author to consist in accounts of the newer remedies, and supplying certain omissions, etc., of former edi-

tions, with the addition of a chapter on prescription writing. A little more fulness in regard to serum and organotherapy would not have been amiss in a work of this kind, at the present time, and the profession generally may not altogether agree with the author in his conclusions that the success of this treatment has not warranted the claims of its promoters. In view of its extension in so many directions just now, and the results claimed, such opinion seems premature.

NOTES ON TREATMENT OF FRACTURES. By John B. Roberts, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic. With thirty-nine Illustrations. Price: Cloth, $1.50. New York: D. Appleton & Co.

This work is a very clear and concise statement of the author's views, which he does not hesitate to express, even when in opposition to the teachings of authorities in standard text-books. It recommends itself to the reader in other ways, however, chiefly by its advocacy of simplicity in the management of those troublesome injuries, the fractures of the bones. Most general practitioners have to deal with these and generally dread them. Dr. Roberts gives his reasons for his views when they are different from the usually accepted ones, and in some instances, at least, he appears to make his case a strong one. The book is unusually good reading for a surgical work, and deserves a careful perusal.

NERVOUS AND MENTAL DISEASES. A manual for students and practitioners. By Charles S. Potts, M.D., Instructor in Nervous Diseases, University of Pennsylvania. Edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Illustrated with Eighty-eight Engravings. Price: Cloth, $1.75. Philadelphia and New York: Lea Brothers & Co.

This is a convenient epitome of the principal facts in regard to nervous diseases, and, allowing for the brevity of the descriptions, a good one. The author has the art of clear description and the schematic diagrams given are well chosen and useful. The section on mental disorders is necessarily less satisfactory than that on nervous diseases. The author mostly follows the text-books of past years, and the result is that his exposition of the facts concerning insanity is not quite the most modern. The conception of confusional insanity, for example, obtained by reading this book, will scarcely be an adequate one. In most respects, however, and more especially in the part relating to nervous diseases proper, the volume will be a convenient and reliable work to freshen the memory of the student or practitioner.

DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, M.D., Clinical Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Octavo, 630 pages, over 150 illustrations and 6 lithographic plates. Price: Cloth, $4 net; Half Morocco, $5 net. Philadelphia: 1899. W. B. Saunders.

In a handsome volume of 644 pages, well illustrated, the author has given a complete description of all morbid appearances in the nose and throat and their treatment. Although no quotations are made, the work of others is fully recognized and merged with the writer's personal experience. But while the reader may get full though concise information and sound advice, this is not given in an easily digested form. Each subject is presented under so many arbitrary and often superfluous subdivisions that it is difficult to get a general survey. A beginner might find great difficulty in using the book as a guide for diagnostic purposes. Again, by cutting up the description of each and every disease into a schematic form of symptoms, lesions, diagnosis, prognosis, etc., the book acquires a flavor of dogmatism, at least to one most in need of information, which mars its utility. The publisher's work is very creditable.

Irresponsibility of Criminal with Latent Epilepsy.—V. Codeluppi relates in the *Riforma Medica*, 10 and 11, the case of a soldier who killed three of his comrades and an elderly stranger, in a fit of frenzy, without motive. The experts decided that the criminal was an epileptic, although he had never had an epileptic seizure. The fits of frenzy were considered the equivalent of the seizures. The Italian court therefore acquitted the prisoner.

Association News.

Section on Surgery and Anatomy.—Dr. H. O. Walker, Chairman of the Section on Surgery and Anatomy, desires us to announce that those who wish to read papers before the Section at the coming meeting of the ASSOCIATION should forward titles either to his address, 27 Adams Avenue E., Detroit, Mich., or to Dr. Ramon Guitéras, secretary, 63 W. Fifty-fourth Street, New York City. It is desired to complete the program as early as possible.

Section on Diseases of Children.—The preliminary program of this Section, for the annual meeting, at Atlantic City, N. J., June 5-8, 1900, is as follows:

SESSION DEVOTED TO THE CONSIDERATION OF SCHOOL CHILDREN.

Symmetrical Development, or Does Our Present School System Develop the Highest Powers of the Child?—E. Stuver, Fort Collins, Colo.

School Break-Downs.—J. Henry Bartlett, Friends' Select School, Philadelphia.

Eye-Strain.—Thomas H. Fenton, Philadelphia.

Care of the Ear in School Children.—Louis J. Lautenbach, Philadelphia.

The Physician's Responsibility in the Physical Education of School Children. Summary: Medical Inspection of School Children. Its Purpose, Its Results. Health Supervision of School Children. Attitude of Family Physician toward the School Authorities, Teachers, Parents and Child.—Grace B. Spiegle, Philadelphia.

Discussed by Drs. F. X. Dercum, C. F. Wahrer and others.

Neglect of Teeth in Children.—A. D. Rosenthal, D.D.S., New York City.

SESSION DEVOTED TO THE CONSIDERATION OF CONTAGIOUS DISEASES.

Shall Children be Kept From Measles, and the Exanthemata Usually Incident to Childhood.—C. F. Wahrer, Fort Madison, Iowa.

Rötheln; A Distinct Affection Apart from Measles and Scarlatina, and its Differentiation from These Exanthemata.—Henry Koplik, New York City.

A Clinical and Pathologic Study of the Rash of Scarlet Fever, with Especial Reference to the Origin and Character of the Desquamation.—Jay F. Schamberg, Philadelphia.

Differential Diagnosis Between Eruptions of Influenza and the Other Infectious Diseases of Childhood.—A. S. Daniel, New York City.

Fetal and Infantile Typhoid.—John Lovett Morse, Boston.

Decubitus Following Intubation.—Joseph Trumpp, Munich, Bavaria.

Resulting Injuries Due to Intubation.—Janos Bokay, of Budapest, Hungary. (Read by Alexander Klein, Philadelphia.)

Discussions by Wm. M. Welch, W. C. Hollopeter and S. Solis Cohen, of Philadelphia; Louis Fischer, New York City; besides others who may also present papers.

SESSION DEVOTED TO CONSIDERATION OF FEEBLE-MINDED AND NERVOUS DISEASES.

Etiology of Idiocy and Imbecility.—Martin W. Barr, Pennsylvania Training School for Feeble-Minded, Elwyn, Pa.

Physiologic Method of Training the Feeble-Minded.—S. J. Fort, Ellicott City, Md.

Care of the Higher Grades of the Feeble-Minded.—A. W. Wilmarth, Wisconsin Home for Feeble-Minded, Chippewa Falls, Wis.

A Study of Circulation in the Feeble-Minded.—J. Madison Taylor, Philadelphia.

Discussion by H. N. Moyer, Chicago; Louis Faugéres Bishop, New York City; F. X. Dercum and J. P. Crozier Griffith, Philadelphia.

Common Forms of Paralysis in Children.—Wm. M. Leszynsky, New York City.

SESSION DEVOTED TO DISEASES OF THE BLOOD AND CIRCULATION.

Purpura Hemorrhagica or Scorbutum: Clinical Sketch.—Henry E. Tuley, Louisville, Ky.

Rheumatism.—Samuel E. Woody, Louisville, Ky.

Chorea.—J. Clements, Kansas City, Mo.

Medicinal and Surgical Treatment of So-called Scrofula.—G. M. Blech, Chicago.

The Essential Points in Treatment of Adolescent and Senile Heart.—John A. Robison, Chicago.

Abortive Treatment of Pneumonia.—Henry Illoway, New York City.

Discussion opened by Alfred Stengel, S. Solis Cohen, and

Edwin E. Graham, of Philadelphia, and S. S. Adams, Washington, D. C.

Cardiac Lesions in Children.—John J. Morrisey, New York City.

SESSION DEVOTED TO INFANT FEEDING AND DISEASES OF THE INTESTINAL TRACT.

The Milk-Supply, Etc.—Prof. Adolf Baginsky, Berlin, Germany.

Infant Feeding.—Alexander McAlister, Camden, N. J.

Discussion opened by Henry D. Chapin, New York City, and Victor C. Vaughan, Ann Arbor, Mich.

Gastro-Intestinal Hemorrhage in a New-Born.—Edward H. Small, Pittsburg, Pa.

Causative, Relative Frequency of Typhlitis, Perityphlitis and Appendicitis in Infancy and Childhood.—Joseph H. Byrne, New York City.

Statistics on Intussusception in Children.—S. Weis, Vienna.

Discussion by Frederick Packard, Philadelphia.

Congenital Malformation of Rectum: A Case of Maternal Impression.—Thomas Charles Martin, Cleveland, Ohio.

Significance of Infantile Stools in Diarrheas of Infants.—Wm. E. Darnall, Atlantic City, N. J.

SESSION DEVOTED TO SURGICAL SUBJECTS.

Movable Kidney (Floating Kidney) in Children.—Isaac Abt, Chicago.

Symptomatology of Appendicular Inflammations in Children.—Thomas H. Manley, New York City.

Normal Salt Transfusion in New-Born, For Hemorrhage From the Cord.—John S. Miller.

Some Joint Diseases in Children, their Diagnosis and Treatment.—Edward A. Tracy, South Boston, Mass.

Athrepsia Infantum: Diagnosis and Treatment.—Louis Fischer, New York City.

Papers and discussions have been promised by I. N. Love, St. Louis, Mo.; A. C. Cotton and W. S. Christopher, Chicago; J. H. Musser, Philadelphia, and others.

Deaths and Obituaries.

ALBERT B. STRONG, M.D., Chicago, died at the Illinois Eastern Hospital for the Insane, Kankakee, March 16, where he had been confined but one week. He was born at Galesburg, Ill., in 1845, and was graduated from Rush Medical College in 1872. He was an interne in St. Luke's Hospital, Chicago, from 1871 till 1872, and served in a similar capacity at the county hospital from July, 1872, till February, 1874. From March, 1874, till October, 1875, he was lecturer on materia medica and therapeutics, in Rush Medical College, and at the latter date was elected demonstrator of anatomy and lecturer on this subject in the spring course of that institution, a position which he held for ten years. He died in a collapse from maniacal excitement, having suffered from three similar attacks on previous occasions. The superinducing cause was a heavy loss in a banking institution in which he was a depositor. He was an active member of the Chicago Medical Society, Illinois State Medical Society and the AMERICAN MEDICAL ASSOCIATION.

THOMAS B. HOOD, M.D., Washington, D. C., died March 15, aged 71. He was born in Fairview, Ohio, and was graduated from the medical department of Western Reserve University in 1861, and began the practice of medicine in Gratiot, Ohio. During the Civil War he served as assistant surgeon of the Seventy-sixth regiment, Ohio volunteers. He assisted in the collaboration and editing of the war records of the provost marshal general's office, and in 1874 was appointed medical referee of the pension office. He was dean of Howard University for many years.

SAMUEL H. PENNINGTON, M.D., Licentiate of Examining Board, 1880, and the oldest living graduate of Princeton College, died at his home in Newark, N. J., March 14, aged 94 years. Several years ago, while in the Adirondacks, he sustained a hip-joint fracture and was almost constantly confined to his house ever afterward. At one time he was an active politician, and for seventeen years a member of a board of education. At the time of his death he was still a trustee of Princeton College and the Princeton Theological Seminary.

G. H. HOLLAND, M.D., of Mt. Perry, Ohio, died March 11, aged 65 years. He served during the Civil War, in the Seventy-eighth Ohio regiment, and was graduated from Starling Medical College in 1869.

J. U. HECKERMAN, M.D., Tiffin, Ohio, died March 11. He was graduated from the National Medical College (D. C.) in 1846, and had practiced in Tiffin more than fifty years.

RICHARD J. MOHR, M.D., Pasadena, Cal., died March 9, aged 60. He was a veteran of the Civil War and a graduate from the College of Physicians and Surgeons, Keokuk, Iowa.

JOHN NOLAN, M.D., College of Physicians and Surgeons, New York City, 1868, died at his home in New York City March 11. He was a Fellow of the N. Y. County Medical Association.

LEWIS ARMSTRONG, M.D., formerly of central Illinois, died of consumption March 19, at El Paso, Texas. He was graduated from the Missouri Medical College in 1883.

STEPHEN P. DENNIS, M.D., died at Salisbury, Md., March 15, of pneumonia, aged 73 years. He was a graduate from Jefferson College.

LOREN L. EDDY, M.D., Olean, N. Y., died March 15, of peritonitis. He was graduated from the University of Buffalo in 1897.

J. B. JUDKINS, M.D., Wetumpka, Ala., died March 8, of Bright's disease. He was graduated from Jefferson Medical College in 1860.

ORLANDO FEYLEY, M.D., Allentown, Pa., died March 15. He was graduated from the College of Physicians and Surgeons, Boston, in 1867.

GEORGE F. WETHERELL, M.D., Chicago, died March 20. He was graduated from the University of the City of New York in 1856.

ROBERT B. HUDSON, M.D., Jefferson Medical College, 1849, died in Roanoke, Va., March 15, aged 72 years.

J. E. HATCHER, M.D., formerly of Bowling Green, Ky., died in Oklahoma, March 10, aged 34 years.

We also note the following deaths:

R. W. CLARKSON, M.D., Mayview, Mo., March 12, aged 70 years.

JAMES J. CULLER, M.D., Jefferson, Md., March 13.

C. C. GANNAWAY, M.D., Warren, Ark., March 12.

DEATHS ABROAD.

E. BOECKEL, professor of surgery at Strasburg, and editor of the Strasburg *Gazette Médicale*.

Miscellany.

Department of Public Health.—The following resolutions are of interest as expressing the views of the bodies passing them, relative to the public health legislation now being urged in Congress:

Resolved, That the Board of Health of Charleston, S. C., regard it as a matter of supreme importance that there should be a representative national health department organized at Washington for the betterment, protection, safety and good health of the people of the United States.

Resolved, That the Board of Health of Charleston indorse the Senate bill (S. 1440) and the House bill (H. R. 6618) and urge the Senators and Representatives in Congress assembled to adopt and enact the above bills.

March 12, 1900.

(Offered by Silas M. Giddings, and unanimously adopted.)

Resolved, That the New York Board of Trade and Transportation renews its approval and support of the bill creating a national health commission, introduced by Senator Spooner and Congressman Ray, known as S. bill 1440, H. R. bill 6618.

The New York Board of Trade and Transportation, by a special and able committee, thoroughly investigated the subject of the operation and regulation of national and interstate matters and the relation thereto of the United States Marine-Hospital Service, and the said committee indorsed the Spooner bill, which is again before Congress, and submitted an exhaustive report thereon, which report is hereto attached:

Resolved, That the New York Board of Trade and Transportation respectfully invites the attention of the Senators and Representatives of Congress from the State of New York to the report of our special committee on the Spooner bill, and earnestly request them to support and vote for the passage of said bill. Be it further

Resolved, That the Honorable Chairman and the members of the Committee on Interstate and Foreign Commerce of the

House of Representatives be also requested to carefully consider the report of the Special Committee of this Board on the Spooner bill, and to report said bill favorably.

March 14, 1900.

BOOKS AND PAMPHLETS RECEIVED.

INTERNATIONAL TEXT-BOOK OF SURGERY. By American and British Authors. Edited by J. Collins Warren, M.D., LL.D., Professor of Surgery in Harvard Medical School, and A. Pearce Gould, M.S., F.R.C.S., Surgeon to Middlesex Hospital. Vol. II. Regional Surgery. With 471 Illustrations in the Text, and eight full-page in Colors. Price, Cloth, $5; Sheep or Half Morocco, $6. Philadelphia: W. B. Saunders. 1900.

SURGICAL PATHOLOGY AND THERAPEUTICS. By John C. Warren, M.D., LL.D., Professor of Surgery in Harvard University. Illustrated. Second Edition with an Appendix, Containing an Enumeration of the Scientific Aids to Surgical Diagnosis, Together with a Series of Sections on Regional Bacteriology. Cloth, $5; half morocco, $6. Philadelphia: W. B. Saunders. 1900.

THE CRIMINAL. His Personnel and Environment. A Scientific Study. By August Drahms, Resident Chaplain State Prison, San Quentin, Cal. With an Introduction by Cesare Lombroso, Professor of Psychiatry, University De Torino, Italy. Cloth. Pp. 402. Price, $2. New York: The MacMillan Co. 1900.

NORDRACH AT HOME, OR HYGIENIC TREATMENT OF CONSUMPTION. By Joseph J. S. Lucas, B.A., M.R.C.S., L.R.C.P., Late Medical Registrar and Pathologist at North London Consumption Hospital. Cloth. Pp. 60. Price, 1 Shilling. Bristol: J. W. Arrowsmith, 11 Quay Street.

TRANSACTIONS OF MISSISSIPPI VALLEY MEDICAL ASSOCIATION. Twenty-fifth Annual Session, Held at Chicago, Oct. 3, 4, 5, and 6, 1899. Vol. 1. Printed for the Association, 1899.

TRANSACTIONS OF AMERICAN PEDIATRIC SOCIETY. Eleventh Session, Held at Deer Park, Md., June 27, 28, and 29, 1899. With the Constitution. Edited by Floyd M. Crandall, M.D. Vol. XI. New York: Reprinted from *Archives of Pediatrics*. 1899.

HOME NURSING. Modern Scientific Methods for the Care of the Sick. By Eveleen Harrison. Cloth. Pp. 235. Price, $1. New York: The Macmillan Co. 1900.

A PILGRIMAGE: OR THE SUNSHINE AND SHADOWS OF THE PHYSICIAN. By Wm. Lane Lowder, B.S., M.D. Cloth. Pp. 196. Price, $1. Louisville, Ky.: R. H. Crothers. 1900.

NEW PATENTS.

The following patents of instruments and appliances of interest to physicians, surgeons, etc., have recently been recorded:

642748—Inhaler, Arthur Manners, Hull, England.
642993—Optical Projecting Apparatus, Baltzar E. L. de Mare, Philadelphia, Pa.
642849—Electrical Massage Instrument, Edmund T. Otto, Jersey City, N. J.
643068—Orthopedic Appliance, Herbert J. Pond, Norwich, England.
642920—Combined Shirt and Suspensory Bandage, Stacy Potts, Washington, D. C.
643014—Atomizer, Charles A. Tatum, New York, N. Y.
643221—Douching Speculum, Lee J. Chapman, Columbus, Ohio.
643144—Preparing Haloid Derivatives of Acetone, Leonhard Lederer, Munich, Germany.
643542—Pneumatic Thermometer, Wm. H. Sanford and H. Brickham, Denver, Colo.
643867—Insufflator, Allen DeVilbiss, Toledo, Ohio.
643949—Disinfecting Apparatus, Royal E. Deane, New York, N.Y.
643822—Device for Applying Hot Air or Vapor to the Human Body, Oliver K. Isham, Hartford, Conn.
643835—Making Fluoroform, Friedrick Valentiner, Leipsic, Germany.
644109—Massage Roller, Margaret Stonebridge, New York, N. Y.
32376—Design, Syringe Nozzle, Frederick H. Jones, Wakefield, Mass.
644872—Apparatus for Making Extracts, Ernst Schliemann and E. von Boyen, Hamburg, Germany.
644803—Artificial Tooth-Crown, Henry D. Justi, Philadelphia, Pa.
645055—Apparatus for Producing Caustic Soda, Henry S. Anderson, Springfield, Mass.
645059—Hernial Truss, Herman Becker, Philadelphia, Pa.
645091—Pocket Prescription Scale, Robert W. Harmon, Lockhart, Miss.
645421—Attachment for Invalid Bedsteads, Edwin A. Libby, Keene, N. H.
645110—Preparing Remedial Substances from Swine-Blood, Gustav Lorenz, Darmstadt, assignor to Rothlauf Serum Gesellschaft mit Beschrankter Haftung, Berlin, Germany.

Queries and Minor Notes.

EXPOSITION EXCURSION.

CHICAGO, March 17, 1900.

To the Editor.—Will you kindly inform me who has charge of the excursion of physicians of the Central States to the Paris Exposition or to whom I could write for information? C. T. M.

ANSWER.—Dr. J. W. Pettit, Ottawa, Ill., Dr. J. W. Cokenower, Des Moines, Iowa, or Dr. Charles Wood Fassett, St. Joseph, Mo., will give information in regard to the proposed medical men's excursion to Paris.

TEXT-BOOKS FOR GENERAL PRACTITIONER.

MANSFIELD, TEXAS, March 6, 1900

To the Editor.—I am a general practitioner in a small town and often have to play the rôle of an all around man. Will you give me your opinion as to the best reference handbooks on materia medica, obstetrics, diseases of the ear, eye and skin. I would like for them all to be up-to-date. Respectfully,

W. B. McK.

ANSWER.—A text-book begins to be out of date from the day of its publication. The latest editions of works by first-class authors are usually the best to get. From this point of view, therefore, we would suggest such works as: King's "Manual of Obstetrics;" Hirst's Obstetrics; Butler's "Text-Book of Materia Medica, Therapeutics and Pharmacology;" Cushny's "Pharmacology and Therapeutics;" Hyde's "Diseases of the Skin;" Jackson's Skin Diseases; Jackson on Diseases of the Eye, or, if a very complete work is desired, Morris and Oliver's System; Ingal's "Diseases of the Chest, Throat and Nose;" and Buck's Otology (latest edition), and there are others nearly or quite as good.

The Public Service.

ARMY CHANGES.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D.C., March 2 to 8, 1900, inclusive:

Samuel K. Carson, acting asst.-surgeon, from New York City to the Department of California.

William Donovan, acting asst.-surgeon, from New York City to the Department of California.

Rufus T. Dorsey, Jr., acting asst.-surgeon, from Atlanta, Ga., to the Department of California.

James H. Hysell, major and surgeon, U. S. V., in addition to his present duties as medical supply officer at Santiago, Cuba, is assigned as disbursing officer of the Medical Department at that place, relieving Major Valery Havard, surgeon, U. S. A.

John F. Leeper, acting asst.-surgeon, from Denver, Colo., to the Department of California.

John M. Lowery, acting asst.-surgeon, from Baltimore, Md., to the Department of California.

John L. Phillips, captain and asst.-surgeon, U. S. A., member of an examining board at Governor's Island, N. Y., *vice* Major Ezra Woodruff, surgeon, U. S. A., relieved.

Ardian S. Polhemus, captain and asst.-surgeon, U. S. A., from St. Francis Barracks, Fla., to Fort Leavenworth, Kans.

George L. Porter, acting asst.-surgeon, from Trenton, Tenn., to the Department of California.

Walter Reed, major and surgeon, U. S. A., from Washington, D.C., to Tampa, Fla., on special duty, and from Tampa to Havana, Cuba, to investigate the practical use of electrozone as a disinfectant and germicide as used in that city, returning thereafter to Tampa, Fla.

William H. Walker, acting asst.-surgeon, from Henderson, Ky., to the Department of California.

NAVY CHANGES.

Changes in the Medical Corps of the U. S. Navy for the week ending March 10, 1900:

Medical Director J. C. Wise, commissioned medical director from Feb. 7, 1900.

Medical Inspector E. Z. Derr, commissioned medical inspector from Feb. 7, 1900.

Surgeon R. P. Crandall, commissioned surgeon from Sept. 24, 1899.

Asst.-Surgeon J. T. Kennedy, appointed asst.-surgeon.

Medical Inspector G. E. H. Harmon, detached from the *Baltimore* and ordered to the *Oregon*.

Surgeon F. B. Stephenson, detached from the *Oregon* and ordered to the *Baltimore*.

Asst.-Surgeon W. B. Grove, detached from the *Brooklyn* and ordered to the *Baltimore*.

Asst.-Surgeon H. H. Haas, detached from the *Baltimore* and ordered to such other duty as the commander-in-chief of the Asiatic station may assign.

P. A. Surgeon J. C. Rosenbleuth, detached from the naval recruiting rendezvous, New Orleans, La., and ordered home and to wait orders.

Asst.-Surgeon F. E. McCullogh, detached from the *Nero* when put out of commission, and ordered to temporary duty on the *Independence*.

Pharmacist I. H. Hurd, ordered to additional duty on the *Massasoit*, Key West, Fla.

MARINE-HOSPITAL CHANGES.

Official list of the changes of station and duties of commissioned an non-commissioned officers of the U. S Marine-Hospital Service for the seven days ended March 8, 1900:

Surgeon F. W. Mead, upon expiration of leave of absence, to proceed to New York City, and assume charge of the purveying depot during absence of Surgeon C. E. Banks.

Surgeon C. E. Banks, granted leave of absence for 7 days from March 6.

Surgeon P. C. Kalloch, to proceed to Mobile, Ala., for special temporary duty.

Surgeon A. H. Glennan, to proceed to San Francisco, Cal., for special temporary duty.

P. A. Surgeon T. B. Perry, to proceed to Atlanta, and report to the Governor of Georgia for temporary duty.

P. A. Surgeon G. M. Guitéras, relieved from duty at Matanzas, and detailed as quarantine officer at the port of Cienfuegos, Cuba.

P. A. Surgeon B. W. Brown, upon being relieved from duty at the Cape Fear quarantine station, to proceed to Cape Charles quarantine and assume command of the service.

P. A. Surgeon H. S. Cumming, to report at Washington, D.C., for special temporary duty.

Asst.-Surgeon R. H. von Ezdorf, relieved from duty at Atlanta, Ga., and directed to rejoin station at New Orleans, La.

Asst.-Surgeon T. B. McClintic, relieved from duty at Cape Charles quarantine station, and directed to proceed to Cape Fear quarantine, Southport, N. C., and assume command of the service.

Asst.-Surgeon F. E. Trotter, relieved from duty at Havana, and detailed as quarantine officer at the port of Matanzas, Cuba.

Asst.-Surgeon J. W. Schereschewski, relieved from duty at the Immigration Depot, New York City, and directed to proceed to Havana, Cuba, and report to Surgeon H. R. Carter for duty.

Asst.-Surgeon C. E. D. Lord, relieved from duty at the port of New York City (Stapleton), and directed to report to Surgeon L. L. Williams, Immigration Depot, New York City, for duty.

Asst.-Surgeon R. L. Wilson, granted leave of absence for 21 days from June 14.

Acting Asst.-Surgeon C. W. Bailey, granted leave of absence for 7 days.

Acting Asst.-Surgeon J. C. Ballard, granted leave of absence for 4 days from April 17.

HEALTH REPORTS.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended March 17, 1900:

SMALLPOX—UNITED STATES.

Alabama: Mobile, Feb. 24 to March 10, 11 cases.
Florida: Jacksonville, March 3-10, 2 cases.
Indiana: Evansville, March 3-10, 5 cases.
Kentucky: Covington, March 3-10, 6 cases.
Louisiana: New Orleans, March 3-10, 79 cases, 22 deaths.
Michigan: Detroit, March 5, 12 cases; Grand Rapids, March 3-10, 1 case.
Minnesota, Minneapolis, Feb. 25 to March 3, 10 cases, 2 deaths.
Missouri: St. Louis, Feb. 17 to March 10, 8 cases.
Nebraska: Omaha, March 3-10, 1 case.
Ohio: Cincinnati, Feb. 26 to March 9, 17 cases; Cleveland, March 2-10, 15 cases, 2 deaths.
Tennessee: Nashville, March 3-10, 1 case.
Utah: Salt Lake City, March 3-10, 4 cases.
Virginia: Portsmouth, March 3-10, 3 cases.
Washington: Centralia, Feb. 26, 150 cases; Seattle, Feb. 10-17, 1 case; Tacoma, Feb. 24 to March 3, 4 cases, 1 death; Walla Walla, Feb. 21, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Dec. 1-31, 6 cases, 4 deaths.
Austria: Prague, Feb. 10-17, 12 cases.
Belgium: Antwerp, Feb. 10-17, 6 cases, 3 deaths; Ghent, Feb. 17-24, 1 death.
Brazil: Rio de Janeiro, Feb. 19-26, 20 cases, 15 deaths.
Canada—British Columbia, Feb. 8-28, 2 cases; Quebec, Gaspe Basin, March 2-9, 9 cases.
Ceylon: Jan. 13-27, 4 deaths.
Egypt: Cairo, Jan. 21 to Feb. 4, 11 cases.
England: London, Feb. 10-24, 19 cases.
France: Lyons, Feb. 10-17, 2 deaths; Nice, Feb. 14-21, 6 cases, 2 deaths.
India: Bombay, Jan. 31 to Feb. 6, 225 deaths; Calcutta, Jan. 20 to Feb. 3, 28 deaths; Kurrachee, Jan. 21 to Feb. 4, 22 cases, 12 deaths; Madras, Feb. 3-7, 1 death.
Mexico: Chihuahua, Feb. 24 to March 3, 8 deaths; Cuidad Porfirio Diaz, March 1-7, 2 cases; Mexico, Feb. 11-18, 27 cases, 19 deaths; Vera Cruz, Feb. 26 to March 3, 2 deaths.
Russia: Moscow, Feb. 3-10, 2 cases, 2 deaths; Odessa, Feb. 10-17, 15 cases; Riga, Dec. 1-31, 34 deaths.

YELLOW FEVER.

Brazil: Bahia, Feb. 3-10, 3 cases, 1 death; Rio de Janeiro, Jan. 19-26, 9 deaths; Santos, Jan. 19 to Feb. 9, 23 cases, 19 deaths.
Colombia: Panama, Feb. 27 to March 6, 2 cases, 1 death.
Cuba: Havana, Feb. 24 to March 3, 2 cases, 1 death.
Mexico: Vera Cruz, Feb. 24 to March 3, 2 deaths.

CHOLERA.

India: Bombay, Jan. 31 to Feb. 6, 7 deaths; Calcutta, Jan. 20 to Feb. 3, 76 deaths.

PLAGUE—U. S. AND INSULAR POSSESSIONS.

California: San Francisco, March 6, 1 death.
Hawaii: Honolulu, Feb. 17-24, 4 cases, 4 deaths; Kehei, since Feb. 21, 1 suspect.
Philippine Islands: Manila, Jan. 20 to Feb. 3, 10 cases, 6 deaths.

PLAGUE.

Argentina: Buenos Ayres, March 10, present.
Australia: Adelaide, Feb. 28, present.
Brazil: Santos, Feb. 4, last case discharged.
India: Bombay, Jan. 31 to Feb. 6, 458 deaths; Calcutta, Jan. 20 to Feb. 3, 152 deaths; Kurrachee, Jan. 21 to Feb 4, 38 cases, 37 deaths.
Paraguay: Asuncion, Jan. 8-15, 14 deaths.

CHANGE OF ADDRESS.

C. F. Andrews, from Cyrustown to Clardyville, Tenn.
T. T. Beverige, from Bridgewater, S. D., to 4155 Grand Boul, Chicago, Ill.
C. E. Bowers, from Anthony to Wichita, Kan.
C. P. Brown, from Kansas City, Mo., to Chickasha, I. T.
C. Beck, from Coffeyville, Kan., to Vienna, Mo.
A. A. Clough, from 1349 California St. to Denison Bldg, Denver, Colo.
D. W. Craig, from 985 N. Halsted St. to 350 Webster Ave., Chicago, Ill.
A. J. Connell, from Scranton to Connell Bldg, Scranton, Pa.
P. F. Cleaver, from Oklahoma City, O. T., to Wichita, Kan.
J. S. Cohen, from 1431 Walnut to 1824 Chestnut St., Philadelphia, Penna.
W. T. Dowdall, from 7100 S. Chicago Ave. to 3816 Rhodes Ave., Chicago, Ill.
G. W. Desrosier, from Colusa to Maxwell, Cal.
J. C. Fanner, from Minneapolis to McKinley, Minn.
L. H. Fales, from Madison to 8 Baker, Racine, Wis.
J. H. Francis, from 198, 11th St. to 268. 9th St., Milwaukee, Wis.
E. P. Gould, from Citizens Bank Bldg to 214 E. Montgomery Ave., Chattanooga, Tenn.
J. J. Hardy, from Cavanal to Sutter, I. T.
J. T. Hubel, from 57 Fort St. W. to 495 Gratiot Ave., Detroit, Mich.
Joe A. Hall, from Troy to 793 E. McMillan, Cincinnati, Ohio.
H. Klein, from German Hospt. to 791 S. Halsted St., Chicago, Ill.
D. F. Kirkpatrick, from Waketon to Lewisville, Tex.
Elmer Lee, from 16 E. 47th to 52 W. 45th, New York City.
J. E. Lacy, from Nashville, Tenn., to Alma, Tex.
I. L. McCurry, from Toccoa, to Hartwell, Ga.
A. Montgomery, from 3977 Cottage Grove Ave., to 3808 Ellis Ave., Chicago, Ill.
T. B. Morris, from Chicago to Illinois Steel Co. Hospt., South Chicago, Ill.
J. W. Mulick, from Riceville to McIntire, Iowa.
H. S. Orme, from 175 N. Spring to Douglas Blk., Los Angeles, Cal.
F. R. Packard, from 325 S. 19th St. to The Professional Bldg., Philadelphia, Pa.
A. B. Perkey, from 393 S. Leavitt to Presbyterian Hospt., Chicago, Ill.
W. B. Powers, from 1929 Amsterdam to 38 W. 71st St., New York City.
S. G. Pake, from Neenah, Wis., to West Duluth, Minn.
G. G. Rahauser, from 2519 Carson to 415 Highland Ave., Pittsburg, Pa.
W. M. Reitzel, from Kansas City to Waterville, Kan.
J. T. Smith, from 69 Washington to 184 Dearborn, Chicago, Ill.
O. B. Schmall, from 110 E. 8th St., to General Delivery, Cincinnati, Ohio.
R. L. Shea, from Keokuk, Iowa, to 822 10th Ave., New York City.
M. A. Smith, from St. Joseph to Gallatin, Mo.
S. Sheldon, from Kansas City to Box 882, Trenton, Mo.
M. B. Tinker, from 2228 N. 17th to 1533 Pine, Philadelphia, Pa.
L. H. Tombaugh, from Sheridan to Waukegan, Ill.
W. B. Wallace, from Lima, Ind., to Manton, Mich.
B. S. Warren, from Clayton, Ala., to 1504 P St., Washington, D. C.
D. G. Wilson, from Journal Bldg. to 1001 Locust, Kansas City, Mo.
P. S. Wright, from Kent to Geneva, Ohio.
L. W. Zwisohn, from 334 E. 78th to 1085 Lexington Ave., New York City.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

is published weekly, at 61 Market Street, Chicago, Ill. The subscription price is five dollars per annum in advance. Postage in the United States, Canada, Mexico, Guam, Porto Rico, and the Philippines, free; foreign postage, $2.50. Subscriptions may commence at any time. Volumes begin with the first issue of January and of July.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

The qualifications for membership require that the applicant be a member, in good standing, of a state or local medical society entitled to send delegates to the annual meeting of the AMERICAN MEDICAL ASSOCIATION. A list of these societies will be sent on request. Applications must be accompanied with a certificate showing that the applicant is a member of a recognized society, and should be sent with the annual dues—five dollars—to the treasurer, Dr. Henry P. Newman, 100 Washington Street, Chicago. Members receive the JOURNAL free. Subscribers to the JOURNAL may become members of the ASSOCIATION without expense if they are members of medical societies recognized by the ASSOCIATION, and those desiring to have their names transferred from the subscription to the membership lists should send certificates as above, with a receipt for their subscription to the JOURNAL, covering the current fiscal year.

FISCAL YEAR.

The fiscal year of the AMERICAN MEDICAL ASSOCIATION is from January 1 to December 31; and the annual dues paid by a new member cover only the fiscal year, no matter at what time of year the membership is obtained. Those who pay their dues and join the ASSOCIATION at the annual meeting in June, for instance, pay only for the fiscal year which ends with the December following, and the annual dues for the following fiscal year are payable the succeeding January, at which time the treasurer sends a statement to each member. Such members, however, are entitled to the JOURNAL for the full year, even though the membership be not continued.

PAPERS READ AT THE ANNUAL MEETING.

"Every paper received by this ASSOCIATION and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the ASSOCIATION. . . . The Board of Trustees shall have full discretionary power to omit from the published transactions, in part or in whole, any paper that may be referred to it by the ASSOCIATION or either of the Sections, unless specially instructed to the contrary by vote of the ASSOCIATION." (From Article V of the By-laws.)

NEWS.

Our readers are requested to send us items of news of a medical nature, also marked copies of local newspapers containing matters of interest to members of the medical profession. We shall be glad to know the name of the sender in every instance.

ORIGINAL PAPERS.

Articles are accepted for publication with the understanding that they are contributed solely to this journal, unless a definite understanding be had to the contrary.

COPYRIGHT.

Matter appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is covered by copyright, but, as a general thing, no objection will be made to the reproduction of anything appearing in its columns if proper credit be given.

CONTRIBUTIONS TYPEWRITTEN.

It will be satisfactory to all concerned if authors will have their contributions typewritten before submitting them for publication. The expense is small to the author—the satisfaction is great to the editor and printer. We can not promise to return unused manuscript.

Half-tones, zinc etchings and other illustrations will be furnished by the JOURNAL when photographs or drawings are supplied by the author.

ADVERTISEMENTS.

Advertising forms go to press eight days in advance of the date of issue. Therefore, in sending in copy, time should be allowed for setting up advertisements and for the sending and return of proofs. Advertising rates will be made known on request.

CHANGE OF ADDRESS.

In ordering a change of address it is important that both the old and new address be given.

REMITTANCES.

Remittances should be made by check, draft, registered letter, money or express order. Currency should not be sent, unless registered. Stamps in amounts under one dollar are acceptable. Make all checks, etc., payable to "JOURNAL AMERICAN MEDICAL ASSOCIATION," except those for annual dues. These should be made payable and sent direct to the Treasurer, Dr. Henry P. Newman, 100 Washington Street, Chicago.